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TABLES

OF THE PROPERTIES OF

SATURATED STEAM

AND OTHER VAPORS.

BY

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SATURATED STEAM, AND OTHER VAPORS.

A comparison of the several tables of the properties of saturated steam, expressed in English units, reveals discrepancies of considerable magnitude; and investigation shows that, while all are in some manner founded on the experiments of Regnault, various methods of calculation have been used, and in some cases other experimental data have been employed. A review of the whole subject, in connection with the preparation of notes on thermodynamics for the use of the students of the Massachusetts Institute of Technology, made it seem important to calculate a set of tables, to accompany those notes, founded on the best and most recent data.

In presenting the tables for general use, it appears proper to state in full the data and the methods of calculation employed, so that each one may see the degree of accuracy and correctness of the tables, and the reliance to be placed on them.

Tables of the properties of other vapors have been added, which will be discussed hereafter.

Pressure of Saturated Steam. — As a conclusion from all the experiments on the tension of saturated steam, Regnault gives, in the *Mémoires de l'Institut de France, etc., Tome XXI.*, the following data: —

TEMPERATURE C.	PRESSURE MM. OF MERCURY.
−32	0.32
−16	1.29
0	4.60
25	23.55
50	91.98
75	288.50
100	760.00
130	2030.0
160	4651.6
190	9426.
220	17390.
−20	0.91
+40	54.91

From these data he calculated, by the aid of seven-place logarithms, the following formulæ, which give the pressure in millimetres of mercury for any temperature in degrees Centigrade: —

A. For steam from −32° to 0° C.

$p = a + b\alpha^{n}.$
$a = -0.08038.$
$\log b = 9.6024724 - 10.$
$\log \alpha = 0.033398.$
$n = 32^{\circ} - t.$

B. For steam from 0° to 100° C.

$\log p = a - b\alpha^{n} + c\beta^{n}.$
$a = 4.7384380.$
$\log b = 0.6116485.$
$\log c = 8.1340339 - 10.$
$\log \alpha = 9.9967249 - 10.$
$\log \beta = 0.006865036.$
$n = t.$

C. For steam from 100° to 220° C.

$\log p = a - b\alpha^{n} + c\beta^{n}.$
$a = 5.4583895.$
$\log b = 0.4121470.$
$\log c = 7.7448901 - 10.$
$\log \alpha = 9.997412127 - 10.$
$\log \beta = 0.007590697.$
$n = t - 100.$

D. For steam from − 20° to 220° C.

$\log p = a - b\alpha^{n} - c\beta^{n}.$
$a = 6.2640348.$
$\log b = 0.1397743.$
$\log c = 0.6924351.$
$\log \alpha = 9.994049292 - 10.$
$\log \beta = 9.998343862 - 10.$
$n = t + 20.$

By aid of the formulæ *A* and *B*, Regnault calculated and recorded tables of the pressures of saturated steam for temperatures from − 32° to 100° C. The formula *D* was calculated from the data given above for the temperatures − 20°, + 40°, 100°, 160°, and 220° C., and was intended to represent the whole range of experiments. By this formula, instead of formula *C*, he calculated the pressures set down in his tables for temperatures from 100° C. to 220° C.

Wishing to obtain greater accuracy for meteorological work, Moritz recalculated Equation *B*, using ten-place logarithms, and obtained constants that differ but little from those that will be given later. Some of the more recent tables in the French system were calculated by his equations.

Equations for the Pressure of Steam at Paris. — In view of the preceding statements, it appeared desirable to re-calculate the constants for Equations *B* and *C*, with a degree of accuracy that should exclude any doubt as to the reliability of the results. Accordingly, the logarithms required were taken from Vega's ten-place table, and then the remainder of the calculations were carried on with natural numbers, checking by independent methods, with the following results: —

B. For steam from 0° to 100° C.

$$\log p = a - b\alpha^n + c\beta^n.$$
$$a = 4.7393622142.$$
$$\log b = 0.6117400190.$$
$$\log c = 8.1320378383 - 10.$$
$$\log \alpha = 9.996725532820 - 10.$$
$$\log \beta = 0.006864675924.$$
$$n = t.$$

C. For steam from 100° to 220° C.

$$\log p = a - b\alpha^n + c\beta^n.$$
$$a = 5.4574301234.$$
$$\log b = 0.4119787931.$$
$$\log c = 7.7417476470 - 10.$$
$$\log \alpha = 9.997411106346 - 10.$$
$$\log \beta = 0.007642489113.$$
$$n = t - 100.$$

To show the degree of accuracy attained, the following tables are given: —

EQUATION *B*.

t.	*p*.	LOG p FROM TABLE OF LOGARITHMS.	LOG p CALCULATED BY EQUATION.
0	4.60	0.6627578317	. . . . . .
25	23.55	1.3719909115	1.37199097
50	91.98	1.9636934052	1.96369346
75	288.50	2.4601458175	2.46014587
100	760	2.8808135923	2.88081365

EQUATION *C*.

t.	*p*.	LOG p FROM TABLE OF LOGARITHMS.	LOG p CALCULATED BY EQUATION.
100	760.00	2.8808135923	. . . .
130	2030.0	3.3074960379	3.307496036
160	4651.6	3.6676023618	3.667602359
190	9426	3.9743274354	3.974327428
220	17390	4.2402995820	4.240299575

The results from Equation *C* are quite satisfactory; for the errors come in the ninth place of decimals, and one place of decimals is unavoidably lost in the application of the formula. Equation *B* was calculated after Equation *C* and the numerical work was not carried to so large a number of decimal places. For the calculation of tables, the constants are carried to seven places of significant figures only; this gives six significant figures in the result, of which five are recorded in the table.

Pressure of Steam at Latitude 45°. — French System. — It is customary to reduce all measurements to the latitude of 45°, and to sea-level. The standard thermometer should then have its boiling and freezing points determined under, or reduced to such conditions. The value of g, the acceleration due to gravity, is, at Paris, latitude 48° 50′ 14″ and 60 metres above sea-level, 9.809218 metres; and at 45°, and at sea-level, it is 9.806056 metres. Consequently, 760 mm. of mercury at 45° gives a pressure equal to that of 759.755 mm. at Paris; and this corresponds to a temperature of 99.°991 C.

In other words, the thermometer which is standard at 45° has each degree 0.99991 of the length of the degree of a thermometer standard at Paris.

To reduce Equation *B* to 45° latitude, we have

$$\log p = a + \log \frac{980.9218}{980.6056} - b\alpha^{0.99991t} + c\beta^{0.99991t};$$

and for Equation *C*,

$$\log p = a + \log \frac{980.9218}{980.6056} - b\alpha^{(0.99991t - 100)} + c\beta^{(0.99991t - 100)}$$

$$= a + \log \frac{980.9218}{980.6056} - b\alpha^{-0.009}\ \alpha^{0.99991\ (t - 100)} + c\beta^{-0.009}\ \beta^{0.99991\ (t-100)}.$$

The resulting equations which were used in calculating Table III are

B. For steam from 0° to 100° C. at 45° latitude.

$$\begin{aligned} \log p &= a_1 - b\alpha_1^{n} + c\beta_1^{n}. \\ a_1 &= 4.739502. \\ \log b &= 0.6117400. \\ \log c &= 8.13204 - 10. \\ \log \alpha_1 &= 9.996725828 - 10 \\ \log \beta_1 &= 0.0068641. \\ n &= t. \end{aligned}$$

C. For steam from 100° to 220° C. at 45° latitude.

$$\begin{aligned} \log p &= a_1 - b_1\alpha_1^{n} + c_1\beta_1^{n}. \\ a_1 &= 5.457570. \\ \log b_1 &= 0.4120021. \\ \log c_1 &= 7.74168 - 10. \\ \log \alpha_1 &- 9.997411296 - 10. \\ \log \beta_1 &= 0.0076418. \\ n &= t - 100. \end{aligned}$$

Pressure of Steam at Latitude 45°. — English System. — To reduce the equations for the pressure of steam, so that they will give the pressures in pounds on the square inch for degrees Fahrenheit, there are required the comparison of measures of length, and of weight, the comparison of the scales of the thermometers, and the specific gravity of mercury.

Professor Rogers (*Proceedings of the Am. Acad. of Arts and Sciences, 1882–83*, also *Additional Observations*, etc.) gives for the length of the metre, 39.3702 inches. This differs from the value given by Capt. Clarke (*Proceedings of the Royal Society, vol. xv., 1866*), by an amount that does not affect the values in the tables; his value being 39.370432 inches.

Professor Miller (*Phil. Transactions, cxlvi., 1856*) gives for the weight of one kilogram, 2.20462125 pounds.

Regnault gives, for the weight of one litre of mercury, 13.5959 kilograms.

The degree Fahrenheit is $\frac{5}{9}$ of the length of the degree Centigrade.

Let
$$k = \frac{13.5959 \times 2.204621}{\overline{39.3702}^2};$$

then the equations *B* and *C* have for the reduction to degrees Fahrenheit, and pounds on the square inch,

$$\log p = a_1 + \log k - b\alpha^{\frac{5}{9}n} + c\beta^{\frac{5}{9}n},$$
$$\log p = a_1 + \log k - b_1\alpha_1^{\frac{5}{9}n} + c_1\ \beta_1^{\frac{5}{9}n}.$$

The resulting equations, which were used in calculating Tables I and II, are: —

B. For steam from 32° to 212° F., in pounds on the square inch.

$$\log p = a_2 - b\alpha_2^n + c\beta_2^n.$$
$$a_2 = 3.025908.$$
$$\log b = 0.6117400.$$
$$\log c = 8.13204 - 10.$$
$$\log \alpha_2 = 9.998181015 - 10.$$
$$\log \beta_2 = 0.0038134.$$
$$n = t - 32.$$

C. For steam from 212° to 428° F., in pounds on the square inch.

$$\log p = a_2 - b_1\alpha_2^n + c_1\beta_2^n.$$
$$a_2 = 3.743976.$$
$$\log b_1 = 0.4120021.$$
$$\log c_1 = 7.74168 - 10.$$
$$\log \alpha_2 = 9.998561831 - 10.$$
$$\log \beta_2 = 0.0042454.$$
$$n = t - 212.$$

All of the foregoing equations make the pressure a function of the temperature on the scale of the air-thermometer. It will be assumed that the difference between that scale and the absolute scale may be neglected.

Other Equations for the Pressure of Steam. — Rankine, in his *Steam Engine and other Prime Movers*, gives the following equation: —

$$\log p = A - \frac{B}{T} - \frac{C}{T^2}.$$

For pounds on the square inch, corresponding to degrees Fahrenheit, —

$$A = 6.1007.$$
$$\log B = 3.43642.$$
$$\log C = 5.59873.$$
$$T = t + 461.^\circ 2 \text{ F.}$$

This equation has been largely used for calculating tables on the English system. The following table will give a comparison between the results from this formula and those from Formulæ B and C.

TEMPERATURE.	PRESSURE.	
	Regnault at 45° latitude.	Rankine.
32	0.0890	0.083
77	0.4555	0.452
122	1.7789	1.78
167	5.579	5.58
212	14.99	14.70
257	33.711	33.71
302	69.27	69.21
347	129.79	129.8
392	225.56	225.9
428	336.26	336.3

Differential Co-efficient $\frac{dp}{dt}$. — As will be seen later, the differential co-efficient $\frac{dp}{dt}$ is used in calculating the volume and density of saturated vapors.

From the general equation of the form,

$$\log p = a + b\alpha^n + c\beta^n,$$

differentiation gives

$$\frac{1}{p}\frac{dp}{dt} = \frac{1}{M^2} b \log \alpha \cdot \alpha^n + \frac{1}{M^2} c \log \beta \cdot \beta^n,$$

in which M is the modulus of the common system of logarithms.

The equation may be written, —

$$\frac{1}{p}\frac{dp}{dt} = A\alpha^n + \mathrm{B}\beta^n.$$

The calculation of the values of the constants gives the following results for latitude 45°: —

French units.

B. For 0° to 100° C., mm. of mercury,

$\log A = 8.8512729 - 10.$
$\log B = 6.69305 - 10.$
$\log a_1 = 9.996725828 - 10.$
$\log \beta_1 = 0.0068641.$

C. For 100° to 220° C., mm. of mercury.

$\log A = 8.5495158 - 10.$
$\log B = 6.34931 - 10.$
$\log a_1 = 9.997411296 - 10.$
$\log \beta_1 = 0.0076418.$

English units.

B. For 32° to 212° F., pounds on the square inch.

$\log A = 8.5960005 - 10.$
$\log B = 6.43778 - 10.$
$\log a_2 = 9.998181015 - 10.$
$\log \beta_2 = 0.0038134.$

C. For 212° to 428° F., pounds on the square inch,

$\log A = 8.2942434 - 10.$
$\log B = 6.09403 - 10.$
$\log a_2 = 9.998561831 - 10.$
$\log \beta_2 = 0.0042454.$

Heat of the Liquid and Specific Heat. — A preliminary series of experiments convinced Regnault that the specific heat of water at low temperature is unity. To test the specific heat at higher temperatures, he ran hot water from a boiler, and at a known temperature, into a calorimeter in which the temperature varied from 8° to 14° C., and the resulting upper temperature varied from 17° to 29° C. Knowing the original weight of water in the calorimeter, the weight run in from the boiler, and the initial and final temperatures in the calorimeter, he calculated the mean specific heat of water between the temperature of the boiler and the final temperatures of the calorimeter. A series of forty such experiments was made, with the temperature of the boiler varying from 108° to 192° C., from which Regnault concluded that the mean specific heat from 0° to 100° is 1.005; and from 0° to 200°, 1.016. The corresponding heat of the liquid, i.e., the heat required to raise one kilogram of water from 0° to a given temperature, t, is

For 100°	100.5
200°	203.2

Assuming an equation of the form

$$q = t + At^2 + Bt^3,$$

and solving for the two constants by aid of the two known values of q, the following equation, which is commonly used, is deduced: —

$$q = t + 0.00002t^2 + 0.0000003t^3.$$

The specific heat at any temperature is, therefore, —

$$c = \frac{dq}{dt} = 1 + 0.00004t + 0.0000009t^2.$$

These equations are for use with the Centigrade scale; for the Fahrenheit scale, a given temperature may be reduced to the Centigrade scale, and then introduced in the same equations.

The process of making the experiments is really a complex one; for the water, in leaving the boiler, has work done on it by the steam pressure in the boiler, and it has a certain velocity impress on it at the same time, and again, in entering the calorimeter, it does work against the atmospheric pressure, and the kinetic energy of its motion is changed into heat. At higher temperatures there is a double change of state; part of the water changes to steam on leaving the boiler, and that steam is condensed again in the calorimeter. It is probable that the error of neglecting the effect of these several actions is inconsiderable.

The degree of accuracy to be accorded to this work is indicated by the fact that Regnault gives four significant figures in stating the data for the calculation of the constants in the equations.

Rowland's Experiments. — A series of experiments was made by Rowland at Baltimore, to determine the mechanical equivalent of heat, which gave a delicate method of determining the heat of the liquid, and the specific heat.

The apparatus used was similar to that used by Joule, with modifications to give greater certainty of results. The calorimeter was of larger size, and the paddle had the upper vanes curved like the blades of a centrifugal pump, to give a strong circulation up through the centre, past the thermometer for taking the temperatures, and down at the outside. The paddle was driven by a petroleum engine, and the power applied was measured by making the calorimeter into a friction brake, with two arms at which the turning moment was measured. Radiation was made as small as possible, and then was made determinate by use of a water-jacket outside of the calorimeter.

The experiments consisted essentially in delivering a measured amount of work to the water in the calorimeter, and in noting the rise of temperature produced thereby.

The whole range covered by the experiments was from 2° to 41° C. The results show that 430 kilogrammetres of work are required to raise one kilogramme of water from 2° to 3° C. Assuming that the same amount will be required to raise the same weight from 0° to 1° and from 1° to 2°, the following table has been arranged from Rowland's final table of results: —

ROWLAND'S MECHANICAL EQUIVALENT OF HEAT.

Degrees, C.	Total Number of Kilogrammeters.	Mechanical Equivalent of Heat.	Heat of the Liquid, Experimental.	Heat of the Liquid, Calculated.	Degrees, C.	Total Number of Kilogrammeters.	Mechanical Equivalent of Heat.	Heat of the Liquid, Experimental.	Heat of the Liquid, Calculated.
1	430	–	1.0068	1.007	22	9424	426.1	22.065	22.063
2	860	–	2.0135	2.014	23	9850	426.0	23.063	23.061
3	1290	–	3.0204	3.022	24	10277	425.9	24.062	24.059
4	1721	–	4.0295	4.029	25	10701	425.8	25.055	25.058
5	2150	429.8	5.0339	5.036	26	11128	425.7	26.054	26.053
6	2580	429.5	6.0408	6.040	27	11553	425.6	27.050	27.048
7	3009	429.3	7.0452	7.045	28	11978	425.6	28.045	28.042
8	3439	429.0	8.0520	8.049	29	12399	425.5	29.031	29.037
9	3868	428.8	9.0564	9.054	30	12828	425.6	30.035	30.032
10	4296	428.5	10.059	10.058	31	13253	425.6	31.030	31.027
11	4723	428.3	11.058	11.060	32	13675	425.6	32.018	32.023
12	5151	428.1	12.061	12.061	33	14101	425.7	33.016	33.018
13	5578	427.9	13.060	13.063	34	14527	425.7	34.011	34.014
14	6006	427.7	14.063	14.064	35	14952	425.8	35.008	35.009
15	6433	427.4	15.065	15.066	36	15379	425.8	36.008	36.007
16	6861	427.2	16.064	16.066	37	15805	–	37.007	37.005
17	7289	427.0	17.066	17.066	38	16231	–	38.003	38.004
18	7717	426.8	18.068	18.066	39	16657	–	39.000	39.002
19	8144	426.6	19.068	19.066	40	17083	–	39.998	40.000
20	8571	426.4	20.068	20.066	41	17508	–	40.993	–
21	8997	426.2	21.065	21.064					

In the above table, column 1 gives the number of degrees above freezing on the Centigrade scale; column 2 gives the number of kilogrammetres required to raise one kilogramme of water from freezing point to the given temperature; column 3 is Rowland's mechanical equivalent of heat at the given temperature derived from 10° intervals on column 2; column 4 is obtained by dividing the numbers in column 2 by the mechanical equivalent of heat at 16⅔° C., or 62° F., from column 3; and column 5 is calculated by considering the specific heat to be constant for each five degrees of temperature. These specific heats were derived from a curve obtained by plotting temperatures for abscissæ, and heats of the liquid for ordinates. The values of the specific heats will be given later, in connection with those for higher temperatures.

A review of the preceding table shows that the specific heat at low temperatures varies quite markedly, so that it appeared advisable to investigate the effect of this variation on Regnault's experiments already quoted. This was done quite expeditiously by multiplying the mean specific heat given by him for his several experiments by the true average specific heat for the range of temperature in the calorimeter. This corrected specific heat was then used to calculate the increase of heat from the final temperature of the calorimeter to the temperature of the boiler, and that increase was added to the heat of the liquid from the table to find the heat of the liquid at the temperature of the boiler. The results were then plotted as before, and compared with the heats of the liquid derived from Regnault's mean specific heats uncorrected. The points by the corrected method were a little more regularly arranged than the points obtained by assuming the specific heat to be unity at low temperatures; but the improvement was inconsiderable. The inequality of the specific heat at low temperatures is seldom so much as the unavoidable errors of the method.

It appeared, that if the specific heat was assumed to be constant, from 40° to 45°, from 45° to 155°, and from 155° to 200° C., the straight lines thus drawn represented the experimental values as recalculated quite nearly; and, further, they represented the uncorrected experimental values more nearly than Regnault's equation.

Specific Heat of Water.—The combination of Rowland's and Regnault's experiments on the heat of the liquid by the method described gives the specific heats set down in the following table, Centigrade scale:—

					SPECIFIC HEAT.
From	0° to	5° C.	32° to	41° F.	1.0072
	5°	10°	41°	50°	1.0044
	10°	15°	50°	59°	1.0016
	15°	20°	59°	68°	1.
	20°	25°	68°	77°	0.9984
	25°	30°	77°	86°	0.9948
	30°	35°	86°	95°	0.9954
	35°	40°	95°	104°	0.9982
	40°	45°	104°	113°	1.
	45°	155°	113°	311°	1.008
	155°	200°	311°	392°	1.046

Thermal Unit.—Heat is measured in calories, or British thermal units (*BTU*). A calorie commonly is defined as the heat required to raise one kilogramme of water from freezing point to 1° C.; and a British thermal unit, that required to raise one pound from 32° to 33° F. Nothing is known about the specific heat of water from 0° to 2° C.; consequently the commonly accepted value of the thermal unit is an ideal quantity inferred from the behavior of water at higher temperatures. It is more scientific to take an easily verified quantity for the standard; and there is a practical convenience in choosing 62° F. for the standard temperature, because it is near the mean temperature of the air during experimental work. Therefore, it is near the mean temperature in the calorimeter during ordinary work with that instrument; and the specific heat of water for the range of temperature in the calorimeter may usually be considered to be unity without error, unless great refinement is desired.

The *BTU* in Tables I and II is taken to be the heat required to raise one pound of water from 62° to 63° F. This agrees substantially with the definition of the calorie, as the heat required to raise one kilogramme of water from 15° to 16° C.

In the tables for other vapors than steam, the old definition for the calorie, and Regnault's value for the heat of the liquid, are retained, to avoid entire recalculation.

Mechanical Equivalent of Heat. — The mechanical equivalent in metre-kilogrammes of one calorie at $16\frac{2}{3}$° C., deduced from Rowland's experiments in the third column of the table on page 58, is 427.1.

Since the value given by Joule is commonly quoted, it will be of interest to make a comparison of his latest work (1873) with Rowland's, as given in the following table: —

Temperature.	Joule's Value at Manchester, English System.	Reduced to the Air Thermometer and to the latitude of Baltimore.		Rowland's Value, corresponding.
		English.	French.	
14.7°	772.7	776.1	425.8	427.6
12.7°	774.6	778.5	427.1	428.0
15.5°	773.1	776.4	426.0	427.3
14.5°	767.0	770.5	422.7	427.5
17.3°	774.0	777.0	426.3	426.9

The value of g at Baltimore, latitude 39° 17′, is 980.05 centimetres therefore, reducing to 45° of latitude, and at the sea level, the value of the mechanical equivalent of heat is

$$J = 426.9.$$

To reduce to the English system, multiply by $\frac{5}{9}$, and by the length of the metre in feet, so that

$$J = 778.$$

Total Heat. — This term is defined as the heat required to raise a unit of weight of water from freezing point to a given temperature, and to entirely evaporate it at that temperature. The experiments made by Regnault were in the reverse order; that is, steam was led from a boiler into the calorimeter, and there condensed. Knowing the initial and final weights of the calorimeter, the temperature of the steam, and the initial and final temperatures of the water in the calorimeter, he was able, after applying the necessary corrections, to calculate the total heats for the several experiments.

As a conclusion of the work, he gives the following values for the total heats: —

10°	610	By equation, 609.6
63°	625	625.2
100°	637	
195°	666	

Assuming an equation of the form

$$\lambda = A + Bt,$$

Regnault calculated the constants from the values given for 100° and 195°, and gives the equation

$$\lambda = 606.5 + 0.305t.$$

Wishing to see the effect of the varying value of the specific heat at low temperatures, I recalculated the total heats given by experiment, by a method resembling that used in recalculation of the heats of the liquid, and plotted the results together with Regnault's values uncorrected. The recalculated points were a little more regular than the original ones, and lay nearer the line represented by the above equation. Especially did the recalculated points for those experiments, for which the true mean specific heat of the water in the calorimeter was nearly unity, lie near that line. It therefore appears that the equation represents our best knowledge of the total heat of steam.

For the Fahrenheit scale the equation becomes

$$\lambda = 1091.7 + 0.305\ (t - 32).$$

Heat of Vaporization.—If the heat of the liquid be subtracted from the total heat, the remainder is called the heat of vaporization, and is represented by r, so that

$$r = \lambda - q.$$

Internal and External Latent Heat. — The heat of vaporization overcomes external pressure, and changes the state from liquid to vapor at constant temperature and pressure. Let the specific volume of the saturated vapor be s, and that of the liquid be σ, then the change of volume is $s - \sigma = u$, on passing from the liquid to the vaporous state. The external work is

$$p(s - \sigma) = pu,$$

and the corresponding amount of heat, or the external latent heat, is

$$Ap(s - \sigma) = Apu,$$

A being the reciprocal of the mechanical equivalent of heat.

The heat required to do the disgregation work, or the internal latent heat, is

$$\rho = r - Apu.$$

Specific Volume and Density of Steam. — On account of the great difficulty of direct determination of the weight of saturated steam, it is customary to calculate the specific volume of steam by aid of the following equation, derived by the application of the principles of thermo-dynamics to the general equation representing the properties of saturated vapor: —

$$s = \frac{r}{AT} \cdot \frac{1}{\frac{dp}{dt}} + \sigma,$$

in which A is the reciprocal of the mechanical equivalent of heat, T is the temperature from the absolute zero, and σ is the volume of one unit of weight of the liquid from which the vapor is formed. The differential co-efficient $\frac{dp}{dt}$ can be calculated by aid of the equations on page 11.

The absolute temperature is obtained by adding 273.7 to the temperature in degrees Centigrade, or 460.7 to the temperature in degrees Fahrenheit.

The volumes and densities of saturated steam given in Tables I, II, and III, were calculated by this method.

It is of interest to consider the degree of accuracy that may be expected from this method of calculating the density of saturated vapor. The value of r repends on λ and q; for the first, Regnault gives three figures in the data from which the empirical equation is deduced, and the experimental work does not indicate a greater degree of accuracy. The fourth figure, if stated, is likely to be in error to the extent of five units. The value of T is commonly stated in four figures, of which the last may be in error by two units. A, as determined by Rowland, has four figures, the last being uncertain to the extent of one or two units. The differential co-efficient $\frac{dp}{dt}$ is deduced from the equations for calculating p; and those equations are derived from data having five places of significant figures. Now the Equations B and C, for steam at 45° of latitude for the English system give a pressure of 14.6967 pounds on the square inch; but the specific volume calculated by aid of Equation B is 26.550 cubic feet, while Equation C gives 26.637 cubic feet. The mean, 26.60, differs from either extreme by about one in seven hundred. This discrepancy is due to the fact that the curves represented by Equations B and C meet at the common temperature, 212°, but do not have a common tangent. Since the equations are empirical and not logical, the error or uncertainty is unavoidable, and all calculated specific volumes are affected by a similar uncertainty. The greatest probable error is in determining r, for which it may be about one in one thousand. The error introduced into this equation by using the values of A in common use, that is, 772 instead of 778, is about one in one hundred.

Tate and Fairbairn's Experiments. — In 1860 an attempt was made by Tate and Fairbairn to determine the specific volume of steam by direct experiment. The following table, taken from the *Philosophical Transactions*, *Vol. cl.*, gives the results of all their experiments, together with the volumes calculated by their empirical formula,

$$V = 25.62 + \frac{49513}{P + 0.72}.$$

	Pressure in Inches of Mercury. P.	Maximum Temperature, Fahrenheit, of Saturation. T	Specific Volume from Experiments. V.	Specific Volume from Formula. V.	Error of Formula.
1	5.35	136.77	8275.3	8183	$-\frac{1}{90}$
2	8.62	155.33	5333.5	5326	$-\frac{1}{712}$
3	9.45	159.36	4920.2	4900	$-\frac{1}{246}$
4	12.47	170.92	3722.6	3766	$+\frac{1}{87}$
5	12.61	171.48	3715.1	3740	$+\frac{1}{149}$
6	13.62	174.92	3438.1	3478	$+\frac{1}{86}$
7	16.01	182.30	3051.0	2985	$-\frac{1}{46}$
8	18.36	188.30	2623.4	2620	$+\frac{1}{774}$
9	22.88	198.78	2149.5	2124	$-\frac{1}{90}$
1′	53.61	242.90	943.1	937	$-\frac{1}{157}$
2′	55.52	244.82	908.0	906	$-\frac{1}{454}$
3′	55.89	245.22	892.5	900	$+\frac{1}{111}$
4′	66.84	255.50	759.4	758	$-\frac{1}{759}$
5′	76.20	263.14	649.2	669	$+\frac{1}{32}$
6′	81.53	267.21	635.3	628	$-\frac{1}{87}$
7′	84.20	269.20	605.7	608	$+\frac{1}{264}$
8′	92.23	274.76	584.4	562	$-\frac{1}{26}$
9′	96.08	273.30	543.2	545	$+\frac{1}{271}$
10′	99.60	279.42	515.0	519	$+\frac{1}{128}$
11′	104.54	282.58	497.2	496	$-\frac{1}{407}$
12′	112.78	287.25	458.3	461	$+\frac{1}{172}$
13′	122.25	292.53	433.1	428	$-\frac{1}{85}$
14′	114.25	288.25	449.6	456	$+\frac{1}{70}$

It is apparent that the errors of this formula are much larger than the probable errors of the thermo-dynamic method.

The following table, giving the volumes in cubic metres of one kilogramme of saturated steam, shows the comparison of the two methods:—

	0° C.	50° C.	100° C.	150° C.	200° C.
By equation $s = \frac{r}{AT} \cdot \frac{dt}{dp} + \sigma$ . .	211.5	12.11	1.660	0.3875	0.1277
From equation $V = 25.62 + \frac{49153}{P + 0.72}$,	54.97	11.43	1.643	0.3706	0.1343

Steam Entropy.—From the second law of thermo-dynamics may be deduced the equation

$$d\phi = \frac{dQ}{T},$$

in which ϕ is the entropy, dQ is the heat applied or withdrawn, and T is the absolute temperature. Since the entropy depends on the state of the substance only, and not on the method of arriving at that state, we may calculate the increase of entropy in one unit of weight of a given mixture of water and steam, above the entropy of one pound of water at freezing point, in the following method. Suppose that one unit of weight of water is raised from freezing point to the temperature t, and that the portion x is then changed into steam. During the first operation the change of entropy will be

$$\theta = \int_0^t \frac{dq}{T} = \int_0^t \frac{cdt}{T}.$$

During the second operation the change of entropy will be

$$\frac{xr}{T},$$

since the heat is added at the constant temperature t. The entire change of entropy will be

$$\phi = \frac{xr}{T} + \int_0^t \frac{cdt}{T} = \frac{xr}{T} + \theta.$$

At any other state the entropy of a unit of weight of a mixture of steam and water will be

$$\phi_1 = \frac{x_1 r_1}{T_1} + \theta_1,$$

and the change of entropy will be

$$\phi - \phi_1 = \frac{xr}{T} + \theta - \frac{x_1 r_1}{T_1} - \theta_1.$$

During an adiabatic change no heat is transmitted, and the entropy is constant.

$$\frac{xr}{T} + \theta = \frac{x_1 r_1}{T_1} + \theta_1.$$

When the initial state including the value of x is known, and also the final temperature or pressure, the final value of x_1 may be calculated by the above equation; and the initial and final volumes may be found by the equations

$$v = xu + \sigma, \qquad v_1 = x_1 u_1 + \sigma;$$

the value of u for a given temperature or pressure, from the equation,

$$s = u + \sigma.$$

Entropy of the Liquid.—When the specific heat of a liquid is known in terms of the temperature, the entropy of the liquid,

$$\theta = \int_0^t \frac{cdt}{T},$$

is readily calculated. For water we have, for example, the entropy of the liquid at 13° C.

$$1.0072 \log_e \frac{T_5}{T_0} + 1.0044 \log_e \frac{T_{10}}{T_5} + 1.0016 \log_e \frac{T_{13}}{T_{10}}.$$

For other liquids having the general formula for the heat of the liquid,

$$q = at + bt^2 + ct^3,$$

the entropy is

$$\theta = \int_0^t \frac{(a + 2bt + 3ct^2)\,dt}{T}.$$

Other Vapors. — Tables IV to IX are taken from Zeuner's *Mechanischen Wärmetheorie.* His values for the specific volume and density were calculated with 273 for the absolute temperature of 0° C., and with 424 for the mechanical equivalent of heat. To bring these tables into accord with Tables I, II, and III, the values of the specific volume and density have been modified by using 273.7 for the absolute temperature of 0° C., and 426.7 for the mechanical equivalent of heat at Paris.

The equations by which the tables were calculated, taken from Regnault's memoirs, *Académie des Sciences, Comptes rendus, Tome XXXVI,* are here assembled, together with Zeuner's equations for the differential co-efficient, $\frac{1}{p}\frac{dp}{dt}$.

TEMPERATURE AND PRESSURE.

1	log p 2	a 3	b 4	c 5
Alcohol	$a - b\alpha^n + c\beta^n$	5.4562028	4.9809960	0.0485397
Ether	$a + b\alpha^n - c\beta^n$	5.0280208	0.0002284	3.1906390
Chloroform	$a - b\alpha^n - c\beta^n$	5.2253893	2.9531281	0.0668673
Carbon bisulphide .	$a - b\alpha^n - c\beta^n$	5.4011662	3.4405663	0.2857386
Carbon tetrachloride .	$a - b\alpha^n - c\beta^n$	12.0962331	9.1375180	1.9674890

TEMPERATURE AND PRESSURE — *Concluded.*

	log α. 6	log β. 7	n 8	Limits. 9
Alcohol	$\bar{1}.99708557$	$\bar{1}.9409485$	t+20	−20°, +150° C.
Ether	0.0145775	$\bar{1}.996877$	t+20	−20°, +120°
Chloroform	$\bar{1}.9974144$	1.9868176	t−20	+20°, +164°
Carbon bisulphide .	$\bar{1}.9977628$	1.9911997	t+20	−20°, +140°
Carbon tetrachloride .	$\bar{1}.9997120$	$\bar{1}.9949780$	t+20	−20°, +188°

The equation for the temperature and pressure of the saturated vapor of aceton, as recalculated by Zeuner, is, —

$$\log p = a - b\alpha^n + c\beta^n.$$
$$a = 5.3085419.$$
$$\log b\alpha^n = +\,0.5312766 - 0.0026148t.$$
$$\log c\beta^n = -\,0.9645222 - 0.0215592t.$$

$$\frac{1}{p}\frac{dp}{dt} = A\alpha^n + B\beta^n$$

From Zeuner's *Wärmetheorie.*

	SIGN.		Log ($A\alpha^n$)	Log ($B\beta^n$)
	$A\alpha^n$	$B\beta^n$		
Alcohol	+	−	$-1.1720041-0.0029143t$	$-2.9992701-0.0590515t$
Ether	+	+	$-1.3396624-0.0031223t$	$-4.4616396+0.0145775t$
Chloroform . . .	+	+	$-1.3410130-0.0025856t$	$-2.0667124-0.0131824t$
Carbon bisulphide .	+	+	$-1.4339778-0.0022372t$	$-2.0511078-0.0088003t$
Carbon tetrachloride,	+	+	$-1.8611078-0.0002880t$	$-1.3812195-0.0050220t$
Aceton	+	+	$-1.3268535-0.0026148t$	$-1.9064582-0.0215592t$

t, temperature C.

HEAT OF THE LIQUID.

Alcohol . . . $q = 0.54754t + 0.0011218t^2 + 0.000002206t^3$
Ether . . . $q = 0.52901t + 0.0002959t^2$
Chloroform . . $q = 0.23235t + 0.0000507t^2$
Carbon bisulphide . $q = 0.23523t + 0.0000815t^2$
Carbon tetrachloride . $q = 0.19798t + 0.0000906t^2$
Aceton . . . $q = 0.50643t + 0.0003965t^2$

TOTAL HEAT.

Ether . . . $\lambda = 94 + 0.45t - 0.0005556t^2$
Chloroform . . $\lambda = 67 + 0.1375t$
Carbon bisulphide . $\lambda = 90 + 0.14601t - 0.0004123t^2$
Carbon tetrachloride . $\lambda = 52 + 0.14625t - 0.000172t^2$
Aceton . . . $\lambda = 140.5 + 0.36644t - 0.000516t^2$

The total heat of alcohol varies in so irregular a manner that no equation can be given for it.

Zeuner gives the following empirical equations for calculating the heat equivalent of the internal work, which are proposed to lessen the labor of calculation

HEAT EQUIVALENT OF INTERNAL WORK.

Water . . . $\rho = 575.40 - 0.791t$
Ether . . . $\rho = 86.54 - 0.10648t - 0.0007160t^2$
Chloroform . . $\rho = 62.44 - 0.11282t - 0.0000140t^2$
Carbon bisulphide . $\rho = 82.79 - 0.11446t - 0.0004020t^2$
Carbon tetrachloride . $\rho = 48.57 - 0.06844t - 0.0002080t^2$
Aceton . . . $\rho = 131.63 - 0.20184t - 0.0006280t^2$

Sulphur Dioxide and Ammonia. — The use of ice-machines has brought into prominence liquids which vaporize at low temperatures. For two such liquids, sulphur dioxide and ammonia, Regnault gives the following equations for temperature and pressure: —

SULPHUR DIOXIDE.	AMMONIA.
$\log p = a - b\alpha^n - c\beta^n$	$\log p = a - b\alpha^n - c\beta^n$
$a = 5.6663790$	$a = 11.5043330$
$b = 3.0146890$	$b = 7.4503520$
$c = 0.1465400$	$c = 0.9499674$
$\log \alpha = \bar{1}.9972989$	$\log \alpha = \bar{1}.9996014$
$\log \beta = \bar{1}.9872900$	$\log \beta = \bar{1}.9939729$
$n = t + 28$	$n = t + 22$
Limits, -28, $+62$.	Limits, -22, $+82$.

Unfortunately the heat of the liquid and the total heat for these substances have not been determined. We have, however, some of the properties of these substances in the gaseous state or more properly in the state of superheated vapors.

Now, it has been shown by Zeuner that superheated steam may have its properties represented by the equation

$$pv = BT - Cp^a,$$

in which p is the pressure in pounds on the square foot or kilograms on the square meter, v is the volume of a pound in cubic feet or of a kilogram in cubic meters, and T is the absolute temperature. The constants have the following values when calculated from the properties of saturated steam:

French units, ...	$B = 51.3$	$C = 198$	$a = \frac{1}{4}$.
English units, ...	$B = 93.5$	$C = 971$	$a = \frac{1}{4}$.

It was first proposed by Ledoux to find similar equations to represent the properties of superheated sulphur dioxide and ammonia, and to use such equations for calculating approximate tables of the properties of these vapors when saturated, just as the tables of the properties of saturated steam had been used in establishing the equation for superheated steam.

In the *Thermodynamics of the Steam-engine* by the author, pages 452 to 459, this calculation has been carried out with the best ascertained properties of the superheated vapors of sulphor dioxide and ammonia with the following results:

	SULPHUR DIOXIDE.	AMMONIA.
French units,	$pv = 14.5\ T - 48p^{0.22}$	$pv = 54.3\ T - 142p^{\frac{1}{4}}$
English units,	$pv = 26.4\ T - 184p^{0.22}$	$pv = 99\ T - 540p^{\frac{1}{4}}$

The application of these equations to the vapors when saturated gives the following results:

HEAT OF VAPORIZATION.

	SULPHUR DIOXIDE.	AMMONIA.
French units,	$r = 98 - 0.27t$	$r = 300 - 0.8t.$
English units,	$r = 176 - 0.27(t - 32)$	$r = 540 - 0.8(t - 32).$

SPECIFIC HEAT OF THE LIQUID.

SULPHUR DIOXIDE.	AMMONIA.
$c = 0.4$	$c = 1.1$

Tables X and XI were calculated by aid of the equations written, and may be of use for approximate calculations, in default of more reliable tables.

Specific Volume of Liquids. — Table XII was taken from the *Phys.-Chem. Tabellen* of Landolt and Börnstein.

Volume of Water. — Table XIII gives the volumes of water compared with its volume at 4°. From 0° to 100° C., the values are those given by Rossetti. Above 100°, the values are those calculated by the equations given by Hirn in the *Annales de Chimie et de Physique, 1867.*

Volumes of Liquids. — The volumes of liquids at high temperatures, compared with the volume at freezing point, are represented by the following equations given by Hirn in the *Annales:* —

		Logs.
Water 100° C. to 200° C. (vol. at 4° C. = unity)	$v=1+0.000108678 75t$	6.0361445—10
	$+0.00000300736 53t^2$	4.4781862—10
	$+0.0000000028730422t^3$	1.4583419—10
	$-0.00000000000066457031t^4$	8.8225409—20
Alcohol 30° C. to 160° C. (vol. at 0° C. = unity)	$v=1+0.00073892265t$	6.8685001—10
	$+0.0000105523 5t^2$	3.0233492—10
	$-0.0000000092480842t^3$	2.3660517—10
	$+0.00000000040413567t^4$	0.6665278—10
Ether 30° C. to 130° C. (vol. at 0° C. = unity)	$v=1+0.0013489059t$	7.1299817—10
	$+0.0000065537t^2$	4.8164866—10
	$-0.000000034490756t^3$	2.5377028—10
	$+0.0000000033772062t^4$	0.5285571—10
Carbon bisulphide 30° to 160° C. (vol. at 0° C. = unity)	$v=1+0.0011680559t$	7.0674636—10
	$+0.0000016489598t^2$	4.2172103—10
	$-0.00000000081119062t^3$	0.9091229—10
	$+0.00000000000060940589t^4$	7.7849494—20
Carbon tetrachloride 30° to 160° C. (vol. at 0° C. = unity)	$v=1+0.0010671883t$	7.0282409—10
	$+0.0000035651378t^2$	4.5520763—10
	$-0.000000014949281t^3$	2.1746202—10
	$+0.000000000085182318t^4$	9.9303494—20

Other Data. — For convenience the following data are assembled: —

Length of the metre in inches	39.3702 (Rogers) 39.370432 (Clarke)
Weight of the kilogramme in pounds . . .	2.20462125
Weight of 1 litre (1 cu. decimetre) of mercury .	13.5959 kilos.
One horse power, in foot pounds per second .	550
Cheval à vapeur, in kilogrammetres per second .	75
Normal pressure of the atmosphere . . .	760 mm. of mercury. 10,333 kilos per sq. m. 14.6967 lbs. per sq. in. 2116.32 lbs. per. sq. ft.
Absolute temperature of freezing point . .	273.°7 C. 492.°7 F.

Explanation of the Tables. — In Table I, the first column gives the temperature, t, of saturated steam.

The second column gives the corresponding pressure, p, in pounds on the square inch, above an absolute vacuum; the differences are placed between the two numbers from which they are derived. For example, the pressure at 40° F. is 0.1216 pounds per square inch; and the difference to be used in interpolation, and placed half a line lower, is 48.

The third column gives the heat of the liquid, q, required to raise the temperature of one pound of water from 32° F. to a given temperature.

The fourth column gives the total heat, λ, required to raise one pound of water from 32° F. to a given temperature, and to entirely vaporize it under the pressure due to that temperature.

The fifth column gives the heat of vaporization, or the heat required to vaporize one pound of water at a given temperature, under the pressure corresponding.

The sixth column gives the heat required to do the disgregation work during the vaporization of one pound of water.

The seventh column gives the heat required to overcome the external pressure, and do the work of increasing the volume from σ to s.

The eighth column gives the entropy of the liquid.

The ninth and tenth columns give the specific volume, or volume in cubic feet, of one pound of saturated steam, and the density or weight of one cubic foot in pounds.

Table II differs from Table I in that it is arranged to give the properties of saturated steam for each pound of pressure.

Table III gives the properties of saturated steam in French units; and Tables IV to XI give the properties of other saturated vapors in the same units. It is to be noted that the pressures in Tables IV to IX are in millimetres of mercury; in Tables X and XI, are in kilogrammes per square metre.

TABLE I.

SATURATED STEAM.

ENGLISH UNITS.

Temperature, Degrees Fahr.	Pressure, Pounds per Square Inch.		Heat of the Liquid.	Total Heat.	Heat of Vaporization.	Heat equivalent of Internal Work.	Heat equivalent of External Work.	Entropy of the Liquid.	Specific Volume.		Density.		Temperature, Degrees Fahr.
t	p		q	λ	r	ρ	Apu	$\int \frac{cdt}{T}$	s		Weight, in Pounds, of one Cubic Foot. γ		t
32	0.0890	36	0	1091.7	1091.7	1035.9	55.8	0.0000	3387	127	0.0002952	115	**32**
33	0.0926	37	1.01	1092.0	1091.0	1035.1	55.9	0.0020	3260	122	0.0003067	120	**33**
34	0.0963	39	2.01	1092.3	1090.3	1034.3	56.0	0.0041	3138	116	0.0003187	122	**34**
35	0.1002	40	3.02	1092.6	1089.6	1033.6	56.0	0.0061	3022	112	0.0003309	127	**35**
36	0.1042	41	4.03	1092.9	1088.9	1032.8	56.1	0.0081	2910	107	0.0003436	132	**36**
37	0.1083	43	5.04	1093.2	1088.2	1032.0	56.2	0.0101	2803	103	0.0003568	136	**37**
38	0.1126	44	6.04	1093.5	1087.5	1031.3	56.2	0.0122	2700	99	0.0003704	141	**38**
39	0.1170	46	7.05	1093.8	1086.7	1030.4	56.3	0.0142	2601	95	0.0003845	145	**39**
40	0.1216	48	8.06	1094.1	1086.0	1029.6	56.4	0.0162	2506	91	0.0003990	151	**40**
41	0.1264	49	9.06	1094.4	1085.3	1028.8	56.5	0.0182	2415	87	0.0004141	155	**41**
42	0.1313	51	10.07	1094.8	1084.7	1028.1	56.6	0.0202	2328	84	0.0004296	160	**42**
43	0.1364	53	11.07	1095.1	1084.0	1027.3	56.7	0.0222	2244	80	0.0004456	165	**43**
44	0.1417	54	12.08	1095.4	1083.3	1026.5	56.8	0.0242	2164	77	0.0004621	171	**44**
45	0.1471	57	13.08	1095.7	1082.6	1025.8	56.8	0.0262	2087	74	0.0004792	176	**45**
46	0.1528	58	14.09	1096.0	1081.9	1025.0	56.9	0.0282	2013	71	0.0004968	181	**46**
47	0.1586	60	15.09	1096.3	1081.2	1024.2	57.0	0.0302	1942	68	0.0005149	187	**47**
48	0.1646	62	16.10	1096.6	1080.5	1023.4	57.1	0.0322	1874	66	0.0005336	194	**48**
49	0.1708	65	17.10	1096.9	1079.8	1022.6	57.2	0.0341	1808	63	0.0005530	201	**49**
50	0.1773	66	18.10	1097.2	1079.1	1021.8	57.3	0.0361	1745	60	0.0005731	206	**50**
51	0.1839	69	19.11	1097.5	1078.4	1021.1	57.3	0.0381	1685	59	0.0005937	213	**51**
52	0.1908	71	20.11	1097.8	1077.7	1020.3	57.4	0.0400	1626	56	0.0006150	219	**52**
53	0.1979	73	21.11	1098.1	1077.0	1019.5	57.5	0.0420	1570	54	0.0006369	226	**53**
54	0.2052	76	22.11	1098.4	1076.3	1018.7	57.6	0.0439	1516	51	0.0006595	234	**54**
55	0.2128	78	23.11	1098.7	1075.6	1017.9	57.7	0.0459	1465	50	0.0006829	240	**55**
56	0.2206	81	24.11	1099.0	1074.9	1017.1	57.8	0.0478	1415	48	0.0007069	248	**56**
57	0.2287	83	25.12	1099.3	1074.2	1016.3	57.9	0.0497	1367	46	0.0007317	254	**57**
58	0.2370	86	26.12	1099.6	1073.5	1015.6	57.9	0.0517	1321	45	0.0007571	263	**58**
59	0.2456	89	27.12	1099.9	1072.8	1014.8	58.0	0.0536	1276	42	0.0007834	270	**59**
60	0.2545	92	28.12	1100.2	1072.1	1014.0	58.1	0.0555	1234	41	0.0008104	280	**60**
61	0.2637	94	29.12	1100.5	1071.4	1013.2	58.2	0.0574	1193	40	0.0008384	289	**61**
62	0.2731	98	30.12	1100.9	1070.8	1012.5	58.3	0.0594	1153	38	0.0008673	296	**62**
63	0.2829	100	31.12	1101.2	1070.1	1011.7	58.4	0.0613	1115	37	0.0008969	304	**63**

SATURATED STEAM — *Continued.*

Temperature, Degrees Fahr. t	Pressure, Pounds per Square Inch. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int \frac{cdt}{T}$	Specific Volume. s	Density. Weight, in Pounds, of one Cubic Foot. γ	Temperature, Degrees Fahr. t
64	0.2929 104	32.12	1101.5	1069.4	1010.9	58.5	0.0632	1078 36	0.0009273 313	**64**
65	0.3033 107	33.12	1101.8	1068.7	1010.1	58.6	0.0651	1042 33	0.0009586 325	**65**
66	0.3140 110	34.12	1102.1	1068.0	1009.4	58.6	0.0670	1009 33	0.0009911 329	**66**
67	0.3250 114	35.12	1102.4	1067.3	1008.6	58.7	0.0689	976.3 316	0.001024 35	**67**
68	0.3364 117	36.12	1102.7	1066.6	1007.8	58.8	0.0708	944.7 304	0.001059 35	**68**
69	0.3481 121	37.12	1103.0	1065.9	1007.0	58.9	0.0727	914.3 293	0.001094 36	**69**
70	0.3602 124	38.11	1103.3	1065.2	1006.2	59.0	0.0745	885.0 283	0.001130 37	**70**
71	0.3726 128	39.11	1103.6	1064.5	1005.4	59.1	0.0764	856.7 272	0.001167 38	**71**
72	0.3854 132	40.11	1103.9	1063.8	1004.6	59.2	0.0783	829.5 263	0.001205 40	**72**
73	0.3986 136	41.11	1104.2	1063.1	1003.8	59.3	0.0802	803.2 253	0.001245 41	**73**
74	0.4122 140	42.11	1104.5	1062.4	1003.0	59.4	0.0820	777.9 244	0.001286 41	**74**
75	0.4262 144	43.11	1104.8	1061.7	1002.3	59.4	0.0839	753.5 236	0.001327 43	**75**
76	0.4406 149	44.11	1105.1	1061.0	1001.5	59.5	0.0858	729.9 228	0.001370 44	**76**
77	0.4555 153	45.10	1105.4	1060.3	1000.7	59.6	0.0876	707.1 219	0.001414 45	**77**
78	0.4708 157	46.10	1105.7	1059.6	999.9	59.7	0.0895	685.2 211	0.001459 46	**78**
79	0.4865 162	47.09	1106.0	1058.9	999.1	59.8	0.0913	664.1 203	0.001505 48	**79**
80	0.5027 167	48.09	1106.3	1058.2	998.3	59.9	0.0932	643.8 197	0.001553 49	**80**
81	0.5194 171	49.08	1106.6	1057.5	997.5	60.0	0.0950	624.1 191	0.001602 51	**81**
82	0.5365 177	50.08	1107.0	1056.9	996.8	60.1	0.0968	605.0 184	0.001653 52	**82**
83	0.5542 181	51.07	1107.3	1056.2	996.0	60.2	0.0987	586.6 178	0.001705 53	**83**
84	0.5723 187	52.07	1107.6	1055.5	995.2	60.3	0.1005	568.8 171	0.001758 55	**84**
85	0.5910 192	53.06	1107.9	1054.8	994.4	60.4	0.1023	551.7 165	0.001813 56	**85**
86	0,6102 197	54.06	1108.2	1054.1	993.7	60.4	0.1041	535.2 160	0.001869 57	**86**
87	0.6299 203	55.05	1108.5	1053.4	992.9	60.5	0.1060	519.2 155	0.001926 59	**87**
88	0.6502 209	56.05	1108.8	1052.7	992.1	60.6	0.1078	503.7 148	0.001985 60	**88**
89	0.6711 214	57.04	1109.1	1052.1	991.4	60.7	0.1096	488.9 143	0.002045 62	**89**
90	0.6925 221	58.04	1109.4	1051.4	990.6	60.8	0.1114	474.6 139	0.002107 64	**90**
91	0.7146 226	59.03	1109.7	1050.7	989.8	60.9	0.1132	460.7 136	0.002171 66	**91**
92	0.7372 233	60.03	1110.0	1050.0	989.0	61.0	0.1150	447.1 131	0.002237 67	**92**
93	0.7605 239	61.03	1110.3	1049.3	988.2	61.1	0.1168	434.0 125	0.002304 68	**93**
94	0.7844 246	62.02	1110.6	1048.6	987.4	61.2	0.1186	421.5 122	0.002372 71	**94**
95	0.8090 252	63.02	1110.9	1047.9	986.6	61.3	0.1204	409.3 118	0.002443 73	**95**
96	0.8342 259	64.01	1111.2	1047.2	985.8	61.4	0.1222	397.5 114	0.002516 74	**96**
97	0.8601 266	65.01	1111.5	1046.5	985.0	61.5	0.1240	386.1 110	0.002590 76	**97**
98	0.8867 273	66.01	1111.8	1045.8	984.2	61.6	0.1258	375.1 107	0.002666 78	**98**
99	0.9140 281	67.01	1112.1	1045.1	983.4	61.7	0.1275	364.4 104	0.002744 80	**99**
100	0.9421 288	68.01	1112.4	1044.4	982.7	61.7	0.1293	354.0 99	0.002824 82	**100**
101	0.9709 295	69.01	1112.7	1043.7	981.9	61.8	0.1311	344.1 96	0.002906 84	**101**
102	1.0004 303	70.00	1113.1	1043.1	981.2	61.9	0.1329	334.5 93	0.002990 85	**102**
103	1.0307 312	71.00	1113.4	1042.4	980.4	62.0	0.1347	325.2 91	0.003075 88	**103**

SATURATED STEAM — *Continued.*

Temperature, Degrees Fahr.	Pressure, Pounds per Square Inch.	Heat of the Liquid.	Total Heat.	Heat of Vaporization.	Heat equivalent of Internal Work.	Heat equivalent of External Work.	Entropy of the Liquid.	Specific Volume.	DENSITY.	Temperature, Degrees Fahr.
									Weight, in Pounds, of one Cubic Foot.	
t	p	q	λ	r	ρ	Apu	$\int \frac{cdt}{T}$	s	γ	t
104	1.0619_{319}	72.0	1113.7	1041.7	979.6	62.1	0.1364	316.1_{88}	0.003163_{91}	**104**
105	1.0938_{328}	73.0	1114.0	1041.0	978.8	62.2	0.1382	307.3_{85}	0.003254_{93}	**105**
106	1.1266_{336}	74.0	1114.3	1040.3	978.0	62.3	0.1400	298.8_{82}	0.003347_{94}	**106**
107	1.1602_{345}	75.0	1114.6	1039.6	977.2	62.4	0.1417	290.6_{79}	0.003441_{96}	**107**
108	1.1947_{354}	76.0	1114.9	1038.9	976.4	62.5	0.1435	282.7_{77}	0.003537_{99}	**108**
109	1.2301_{362}	77.0	1115.2	1038.2	975.6	62.6	0.1452	275.0_{75}	0.003636_{102}	**109**
110	1.2663_{372}	78.0	1115.5	1037.5	974.8	62.7	0.1470	267.5_{72}	0.003738_{104}	**110**
111	1.3035_{381}	79.0	1115.8	1036.8	974.0	62.8	0.1487	260.3_{70}	0.003842_{106}	**111**
112	1.3416_{391}	80.0	1116.1	1036.1	973.2	62.9	0.1505	253.3_{68}	0.003948_{109}	**112**
113	1.3807_{400}	81.0	1116.4	1035.4	972.4	63.0	0.1522	246.5_{66}	0.004057_{111}	**113**
114	1.4207_{411}	82.0	1116.7	1034.7	971.6	63.1	0.1540	239.9_{64}	0.004168_{115}	**114**
115	1.4618_{421}	83.0	1117.0	1034.0	970.8	63.2	0.1558	233.5_{62}	0.004283_{116}	**115**
116	1.5039_{431}	84.0	1117.3	1033.3	970.0	63.3	0.1575	227.3_{60}	0.004399_{120}	**116**
117	1.5470_{442}	85.0	1117.6	1032.6	969.2	63.4	0.1592	221.3_{58}	0.004519_{121}	**117**
118	1.5912_{452}	86.0	1117.9	1031.9	968.4	63.5	0.1610	215.5_{56}	0.004640_{124}	**118**
119	1.6364_{464}	87.0	1118.2	1031.2	967.6	63.6	0.1627	209.9_{55}	0.004764_{128}	**119**
120	1.6828_{474}	88.1	1118.5	1030.4	966.7	63.7	0.1645	204.4_{53}	0.004892_{130}	**120**
121	1.7302_{487}	89.1	1118.8	1029.7	966.0	63.7	0.1662	199.1_{52}	0.005022_{134}	**121**
122	1.7789_{498}	90.1	1119.2	1029.1	965.3	63.8	0.1679	193.9_{50}	0.005156_{137}	**122**
123	1.8287_{510}	91.1	1119.5	1028.4	964.5	63.9	0.1697	188.9_{48}	0.005293_{139}	**123**
124	1.8797_{521}	92.1	1119.8	1027.7	963.7	64.0	0.1714	184.1_{47}	0.005432_{142}	**124**
125	1.9318_{534}	93.1	1120.1	1027.0	962.9	64.1	0.1731	179.4_{46}	0.005574_{146}	**125**
126	1.9852_{547}	94.1	1120.4	1026.3	962.1	64.2	0.1748	174.8_{44}	0.005720_{148}	**126**
127	2.0399_{560}	95.1	1120.7	1025.6	961.3	64.3	0.1765	170.4_{43}	0.005868_{152}	**127**
128	2.0959_{574}	96.1	1121.0	1024.9	960.5	64.4	0.1783	166.1_{42}	0.006020_{156}	**128**
129	2.1533_{586}	97.1	1121.3	1024.2	959.7	64.5	0.1800	161.9_{41}	0.006176_{160}	**129**
130	2.2119_{600}	98.1	1121.6	1023.5	958.9	64.6	0.1817	157.8_{39}	0.006336_{162}	**130**
131	2.2719_{614}	99.1	1121.9	1022.8	958.1	64.7	0.1834	153.9_{38}	0.006498_{166}	**131**
132	2.3333_{628}	100.2	1122.2	1022.0	957.2	64.8	0.1851	150.1_{37}	0.006664_{169}	**132**
133	2.3961_{642}	101.2	1122.5	1021.3	956.4	64.9	0.1868	146.4_{36}	0.006833_{172}	**133**
134	2.4603_{658}	102.2	1122.8	1020.6	955.6	65.0	0.1885	142.8_{36}	0.007005_{176}	**134**
135	2.5261_{671}	103.2	1123.1	1019.9	954.8	65.1	0.1902	139.2_{34}	0.007181_{180}	**135**
136	2.5932_{687}	104.2	1123.4	1019.2	954.0	65.2	0.1919	135.8_{33}	0.007361_{184}	**136**
137	2.6619_{702}	105.2	1123.7	1018.5	953.2	65.3	0.1936	132.5_{32}	0.007545_{187}	**137**
138	2.7321_{719}	106.2	1124.0	1017.8	952.4	65.4	0.1952	129.3_{31}	0.007732_{192}	**138**
139	2.8040_{734}	107.2	1124.3	1017.1	951.6	65.5	0.1969	126.2_{30}	0.007924_{196}	**139**
140	2.8774_{751}	108.2	1124.6	1016.4	950.8	65.6	0.1986	123.2_{30}	0.008120_{198}	**140**
141	2.9525_{767}	109.2	1124.9	1015.7	950.0	65.7	0.2003	120.2_{29}	0.008318_{204}	**141**
142	3.0292_{784}	110.2	1125.3	1015.1	949.3	65.8	0.2020	117.3_{28}	0.008522_{208}	**142**
143	3.1076_{801}	111.2	1125.6	1014.4	948.5	65.9	0.2036	114.5_{27}	0.008730_{212}	**143**

SATURATED STEAM—*Continued.*

									Density.	
Temperature, Degrees Fahr. t	Pressure, Pounds per Square Inch. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{c\,dt}{T}$	Specific Volume. s	Weight, in Pounds, of one Cubic Foot. γ	Temperature, Degrees Fahr. t
144	3.1877$_{819}$	112.2	1125.9	1013.7	947.7	66.0	0.2053	111.8$_{26}$	0.008942$_{217}$	**144**
145	3.2696$_{836}$	113.3	1126.2	1012.9	946.8	66.1	0.2070	109.2$_{26}$	0.009159$_{220}$	**145**
146	3.3532$_{855}$	114.3	1126.5	1012.2	946.0	66.2	0.2086	106.6$_{25}$	0.009379$_{225}$	**146**
147	3.4387$_{873}$	115.3	1126.8	1011.5	945.2	66.3	0.2103	104.1$_{24}$	0.009604$_{229}$	**147**
148	3.5260$_{892}$	116.3	1127.1	1010.8	944.4	66.4	0.2119	101.7$_{24}$	0.009833$_{237}$	**148**
149	3.6152$_{911}$	117.3	1127.4	1010.1	943.6	66.5	0.2136	99.33$_{230}$	0.01007$_{24}$	**149**
150	3.7063$_{930}$	118.3	1127.7	1009.4	942.8	66.6	0.2152	97.03$_{224}$	0.01031$_{24}$	**150**
151	3.7993$_{950}$	119.3	1128.0	1008.7	942.0	66.7	0.2169	94.79$_{218}$	0.01055$_{25}$	**151**
152	3.8943$_{970}$	120.3	1128.3	1008.0	941.3	66.7	0.2185	92.61$_{212}$	0.01080$_{25}$	**152**
153	3.9913$_{990}$	121.3	1128.6	1007.3	940.5	66.8	0.2202	90.49$_{206}$	0.01105$_{26}$	**153**
154	4.0903$_{1011}$	122.3	1128.9	1006.6	939.7	66.9	0.2218	88.43$_{201}$	0.01131$_{26}$	**154**
155	4.1914$_{1032}$	123.3	1129.2	1005.9	938.9	67.0	0.2235	86.42$_{195}$	0.01157$_{27}$	**155**
156	4.2946$_{1054}$	124.3	1129.5	1005.2	938.1	67.1	0.2251	84.47$_{191}$	0.01184$_{27}$	**156**
157	4.4000$_{1075}$	125.4	1129.8	1004.4	937.2	67.2	0.2267	82.56$_{186}$	0.01211$_{28}$	**157**
158	4.5075$_{1097}$	126.4	1130.1	1003.7	936.4	67.3	0.2284	80.70$_{180}$	0.01239$_{28}$	**158**
159	4.6172$_{1120}$	127.4	1130.4	1003.0	935.6	67.4	0.2300	78.90$_{176}$	0.01267$_{29}$	**159**
160	4.7292$_{1143}$	128.4	1130.7	1002.3	934.8	67.5	0.2316	77.14$_{171}$	0.01296$_{30}$	**160**
161	4.8435$_{1166}$	129.4	1131.0	1001.6	934.0	67.6	0.2332	75.43$_{166}$	0.01326$_{30}$	**161**
162	4.9601$_{1189}$	130.4	1131.4	1001.0	933.3	67.7	0.2349	73.77$_{163}$	0.01356$_{30}$	**162**
163	5.079$_{121}$	131.4	1131.7	1000.3	932.5	67.8	0.2365	72.14$_{158}$	0.01386$_{31}$	**163**
164	5.200$_{124}$	132.4	1132.0	999.6	931.7	67.9	0.2381	70.56$_{155}$	0.01417$_{32}$	**164**
165	5.324$_{126}$	133.4	1132.3	998.9	930.9	68.0	0.2397	69.01$_{150}$	0.01449$_{32}$	**165**
166	5.450$_{129}$	134.4	1132.6	998.2	930.1	68.1	0.2413	67.51$_{146}$	0.01481$_{33}$	**166**
167	5.579$_{131}$	135.4	1132.9	997.5	929.3	68.2	0.2429	66.05$_{143}$	0.01514$_{34}$	**167**
168	5.710$_{134}$	136.4	1133.2	996.8	928.5	68.3	0.2445	64.62$_{140}$	0.01548$_{34}$	**168**
169	5.844$_{137}$	137.4	1133.5	996.1	927.7	68.4	0.2461	63.22$_{137}$	0.01582$_{35}$	**169**
170	5.981$_{139}$	138.5	1133.8	995.3	926.8	68.5	0.2477	61.85$_{132}$	0.01617$_{35}$	**170**
171	6.120$_{142}$	139.5	1134.1	994.6	926.0	68.6	0.2493	60.53$_{128}$	0.01652$_{36}$	**171**
172	6.262$_{145}$	140.5	1134.4	993.9	925.2	68.7	0.2509	59.25$_{126}$	0.01688$_{36}$	**172**
173	6.407$_{147}$	141.5	1134.7	993.2	924.4	68.8	0.2525	57.99$_{123}$	0.01724$_{38}$	**173**
174	6.554$_{150}$	142.5	1135.0	992.5	923.7	68.8	0.2541	56.76$_{120}$	0.01762$_{38}$	**174**
175	6.704$_{154}$	143.5	1135.3	991.8	922.9	68.9	0.2557	55.56$_{116}$	0.01800$_{38}$	**175**
176	6.858$_{156}$	144.5	1135.6	991.1	922.1	69.0	0.2573	54.40$_{114}$	0.01838$_{40}$	**176**
177	7.014$_{159}$	145.5	1135.9	990.4	921.3	69.1	0.2589	53.26$_{112}$	0.01878$_{40}$	**177**
178	7.173$_{162}$	146.5	1136.2	989.7	920.5	69.2	0.2604	52.14$_{108}$	0.01918$_{40}$	**178**
179	7.335$_{165}$	147.5	1136.5	989.0	919.7	69.3	0.2620	51.06$_{105}$	0.01958$_{42}$	**179**
180	7.500$_{168}$	148.5	1136.8	988.3	918.9	69.4	0.2636	50.01$_{103}$	0.02000$_{42}$	**180**
181	7.668$_{172}$	149.5	1137.1	987.6	918.1	69.5	0.2652	48.98$_{101}$	0.02042$_{43}$	**181**
182	7.840$_{174}$	150.6	1137.5	986.9	917.3	69.6	0.2667	47.97$_{98}$	0.02085$_{43}$	**182**
183	8.014$_{178}$	151.6	1137.8	986.2	916.5	69.7	0.2683	46.99$_{96}$	0.02128$_{44}$	**183**

SATURATED STEAM—*Continued.*

									DENSITY.	
Temperature, Degrees Fahr. t	Pressure, Pounds per Square Inch. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	Weight, in Pounds, of one Cubic Foot. γ	Temperature, Degrees Fahr. t
184	8.192$_{181}$	152.6	1138.1	985.5	915.7	69.8	0.2699	46.03$_{94}$	0.02172$_{46}$	**184**
185	8.373$_{185}$	153.6	1138.4	984.8	914.9	69.9	0.2714	45.09$_{92}$	0.02218$_{46}$	**185**
186	8.558$_{188}$	154.6	1138.7	984.1	914.1	70.0	0.2730	44.17$_{89}$	0.02264$_{47}$	**186**
187	8.746$_{191}$	155.6	1139.0	983.4	913.4	70.0	0.2745	43.28$_{87}$	0.02311$_{47}$	**187**
188	8.937$_{195}$	156.6	1139.3	982.7	912.6	70.1	0.2761	42.41$_{85}$	0.02358$_{48}$	**188**
189	9.132$_{198}$	157.6	1139.6	982.0	901.8	70.2	0.2777	41.56$_{83}$	0.02406$_{49}$	**189**
190	9.330$_{202}$	158.6	1139.9	981.3	911.0	70.3	0.2792	40.73$_{81}$	0.02455$_{50}$	**190**
191	9.532$_{206}$	159.6	1140.2	980.6	910.2	70.4	0.2808	39.92$_{79}$	0.02505$_{51}$	**191**
192	9.738$_{209}$	160.6	1140.5	979.9	909.4	70.5	0.2823	39.13$_{78}$	0.02556$_{52}$	**192**
193	9.947$_{213}$	161.6	1140.8	979.2	908.6	70.6	0.2838	38.35$_{76}$	0.02608$_{52}$	**193**
194	10.160$_{217}$	162.6	1141.1	978.5	907.8	70.7	0.2854	37.59$_{74}$	0.02660$_{54}$	**194**
195	10.377$_{221}$	163.7	1141.4	977.7	906.9	70.8	0.2869	36.85$_{72}$	0.02714$_{54}$	**195**
196	10.598$_{224}$	164.7	1141.7	977.0	906.2	70.8	0.2885	36.13$_{71}$	0.02768$_{55}$	**196**
197	10.822$_{229}$	165.7	1142.0	976.3	905.4	70.9	0.2900	35.42$_{69}$	0 02823$_{56}$	**197**
198	11.051$_{232}$	166.7	1142.3	975.6	904.6	71.0	0.2915	34.73$_{67}$	0.02879$_{57}$	**198**
199	11.283$_{237}$	167.7	1142.6	974.9	903.8	71.1	0.2930	34.06$_{66}$	0.02936$_{58}$	**199**
200	11.520$_{241}$	168.7	1142.9	974.2	903.0	71.2	0.2946	33.40$_{64}$	0.02994$_{59}$	**200**
201	11.761$_{244}$	169.7	1143.2	973.5	902.2	71.3	0.2961	32.76$_{63}$	0.03053$_{59}$	**201**
202	12.005$_{249}$	170.7	1143.6	972.9	901.5	71.4	0.2976	32.13$_{61}$	0.03112$_{61}$	**202**
203	12.254$_{254}$	171.7	1143.9	972.2	900.8	71.4	0.2991	31.52$_{60}$	0.03173$_{62}$	**203**
204	12.508$_{257}$	172.7	1144.2	971.5	900.0	71.5	0.3007	30.92$_{59}$	0.03235$_{62}$	**204**
205	12.765$_{263}$	173.7	1144.5	970.8	899.2	71.6	0.3022	30.33$_{57}$	0.03297$_{66}$	**205**
206	13.028$_{266}$	174.7	1144.8	970.1	898.4	71.7	0.3037	29.76$_{57}$	0.03361$_{65}$	**206**
207	13.294$_{271}$	175.8	1145.1	969.3	897.5	71.8	0.3052	29.19$_{56}$	0.03426$_{67}$	**207**
208	13.565$_{276}$	176.8	1145.4	968.6	896.7	71.9	0.3067	28.63$_{54}$	0.03493$_{67}$	**208**
209	13.841$_{281}$	177.8	1145.7	967.9	896.0	71.9	0.3082	28.09$_{52}$	0.03560$_{68}$	**209**
210	14.122$_{285}$	178.8	1146.0	967.2	895.2	72.0	0.3097	27.57$_{52}$	0.03628$_{69}$	**210**
211	14.407$_{290}$	179.8	1146.3	966.5	894.4	72.1	0.3112	27.05$_{45}$	0.03697$_{63}$	**211**
212	14.697$_{293}$	180.8	1146.6	965.8	893.5	72.3	0.3127	26.60$_{44}$	0.03760$_{64}$	**212**
213	14.990$_{299}$	181.8	1146.9	965.1	892.6	72.5	0.3142	26.16$_{49}$	0.03824$_{72}$	**213**
214	15.289$_{303}$	182.8	1147.2	964.4	891.8	72.6	0.3157	25.67$_{48}$	0.03896$_{73}$	**214**
215	15.592$_{309}$	183.8	1147.5	963.7	891.0	72.7	0.3172	25.19$_{46}$	0.03969$_{74}$	**215**
216	15.901$_{313}$	184.8	1147.8	963.0	890.2	72.8	0.3187	24.73$_{45}$	0.04043$_{75}$	**216**
217	16.214$_{319}$	185.8	1148.1	962.3	889.5	72.8	0.3202	24.28$_{44}$	0.04118$_{76}$	**217**
218	16.533$_{324}$	186.8	1148.4	961.6	888.7	72.9	0.3217	23.84$_{43}$	0.04194$_{78}$	**218**
219	16.857$_{329}$	187.8	1148.7	960.9	887.9	73.0	0.3232	23.41$_{43}$	0.04272$_{80}$	**219**
220	17.186$_{335}$	188.9	1149.0	960.1	887.1	73.0	0.3246	22.98$_{42}$	0.04352$_{80}$	**220**
221	17.521$_{340}$	189.9	1149.3	959.4	886.3	73.1	0.3261	22.56$_{41}$	0.04432$_{82}$	**221**
222	17.861$_{345}$	190.9	1149.7	958.8	885.6	73.2	0.3276	22.15$_{39}$	0.04514$_{82}$	**222**
223	18.206$_{351}$	191.9	1150.0	958.1	884.8	73.3	0.3291	21.76$_{39}$	0.04596$_{84}$	**223**

SATURATED STEAM — *Continued.*

Temperature, Degrees Fahr. t	Pressure, Pounds per Square Inch. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	Density. Weight, in Pounds, of one Cubic Foot. γ	Temperature, Degrees Fahr. t
224	18.557_{357}	192.9	1150.3	957.4	884.0	73.4	0.3305	21.37_{38}	0.04679_{85}	**224**
225	18.914_{362}	193.9	1150.6	956.7	883.3	73.4	0.3320	20.99_{37}	0.04764_{86}	**225**
226	19.276_{368}	194.9	1150.9	956.0	882.5	73.5	0.3335	20.62_{37}	0.04850_{88}	**226**
227	19.644_{374}	195.9	1151.2	955.3	881.7	73.6	0.3349	20.25_{36}	0.04938_{90}	**227**
228	20.018_{379}	196.9	1151.5	954.6	880.9	73.7	0.3364	19.89_{35}	0.05028_{90}	**228**
229	20.397_{386}	197.9	1151.8	953.9	880.2	73.7	0.3379	19.54_{34}	0.05118_{90}	**229**
230	20.783_{392}	198.9	1152.1	953.2	879.4	73.8	0.3393	19.20_{33}	0.05208_{92}	**230**
231	21.175_{397}	199.9	1152.4	952.5	878.6	73.9	0.3408	18.87_{33}	0.05300_{94}	**231**
232	21.572_{404}	201.0	1152.7	951.7	877.8	73.9	0.3423	18.54_{32}	0.05394_{95}	**232**
233	21.976_{410}	202.0	1153.0	951.0	877.0	74.0	0.3437	18.22_{32}	0.05489_{97}	**233**
234	22.386_{417}	203.0	1153.3	950.3	876.2	74.1	0.3452	17.90_{31}	0.05586_{99}	**234**
235	22.803_{423}	204.0	1153.6	949.6	875.4	74.2	0.3466	17.59_{30}	0.05685_{99}	**235**
236	23.226_{429}	205.0	1153.9	948.9	874.6	74.3	0.3481	17.29_{30}	0.05784_{101}	**236**
237	23.655_{436}	206.0	1154.2	948.2	873.9	74.3	0.3495	16.99_{29}	0.05885_{102}	**237**
238	24.091_{442}	207.0	1154.5	947.5	873.1	74.4	0.3510	16.70_{28}	0.05987_{103}	**238**
239	24.533_{449}	208.0	1154.8	946.8	872.3	74.5	0.3524	16.42_{28}	0.06090_{105}	**239**
240	24.982_{456}	209.0	1155.1	946.1	871.6	74.5	0.3538	16.14_{27}	0.06195_{106}	**240**
241	25.438_{462}	210.0	1155.4	945.4	870.8	74.6	0.3553	15.87_{27}	0.06301_{108}	**241**
242	25.900_{470}	211.0	1155.8	944.8	870.1	74.7	0.3567	15.60_{26}	0.06409_{110}	**242**
243	26.370_{476}	212.0	1156.1	944.1	869.3	74.8	0.3581	15.34_{26}	0.06519_{111}	**243**
244	26.846_{484}	213.0	1156.4	943.4	868.5	74.9	0.3596	15.08_{25}	0.06630_{113}	**244**
245	27.330_{491}	214.1	1156.7	942.6	867.7	74.9	0.3610	14.83_{25}	0.06743_{115}	**245**
246	27.821_{498}	215.1	1157.0	941.9	866.9	75.0	0.3624	14.58_{24}	0.06858_{115}	**246**
247	28.319_{505}	216.1	1157.3	941.2	866.1	75.1	0.3639	14.34_{23}	0.06973_{116}	**247**
248	28.824_{512}	217.1	1157.6	940.5	865.3	75.2	0.3653	14.11_{23}	0.07089_{118}	**248**
249	29.336_{520}	218.1	1157.9	939.8	864.5	75.3	0.3667	13.88_{23}	0.07207_{120}	**249**
250	29.856_{528}	219.1	1158.2	939.1	863.8	75.3	0.3681	13.65_{22}	0.07327_{121}	**250**
251	30.384_{535}	220.1	1158.5	938.4	863.0	75.4	0.3695	13.43_{22}	0.07448_{123}	**251**
252	30.919_{543}	221.1	1158.8	937.7	862.2	75.5	0.3709	13.21_{22}	0.07571_{126}	**252**
253	31.462_{550}	222.1	1159.1	937.0	861.4	75.6	0.3724	12.99_{21}	0.07697_{128}	**253**
254	32.012_{559}	223.1	1159.4	936.3	860.7	75.6	0.3738	12.78_{21}	0.07825_{128}	**254**
255	32.571_{566}	224.1	1159.7	935.6	859.9	75.7	0.3752	12.57_{20}	0.07953_{129}	**255**
256	33.137_{574}	225.1	1160.0	934.9	859.1	75.8	0.3766	12.37_{20}	0.08082_{132}	**256**
257	33.711_{583}	226.2	1160.3	934.1	858.2	75.9	0.3780	12.17_{19}	0.08214_{133}	**257**
258	34.294_{590}	227.2	1160.6	933.4	857.5	75.9	0.3794	11.98_{19}	0.08347_{135}	**258**
259	34.884_{599}	228.2	1160.9	932.7	856.7	76.0	0.3808	11.79_{19}	0.08482_{137}	**259**
260	35.483_{607}	229.2	1161.2	932.0	855.9	76.1	0.3822	11.60_{18}	0.08619_{138}	**260**
261	36.090_{616}	230.2	1161.5	931.3	855.1	76.2	0.3836	11.42_{18}	0.08757_{140}	**261**
262	36.706_{624}	231.2	1161.9	930.7	854.4	76.3	0.3850	11.24_{18}	0.08897_{142}	**262**
263	37.330_{633}	232.2	1162.2	930.0	853.7	76.3	0.3864	11.06_{17}	0.09039_{143}	**263**

SATURATED STEAM—*Continued.*

Degrees Fahr.	Pressure, Pounds per Square Inch. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	Density. Weight, in Pounds, of one Cubic Foot. γ	Temperature, Degrees Fahr. t
64	37.963_{641}	233.2	1162.5	929.3	852.9	76.4	0.3878	10.89_{17}	0.09182_{145}	264
65	38.604_{651}	234.2	1162.8	928.6	852.1	76.5	0.3891	10.72_{17}	0.09327_{147}	265
66	39.255_{659}	235.2	1163.1	927.9	851.3	76.6	0.3906	10.55_{16}	0.09474_{150}	266
67	39.914_{668}	236.2	1163.4	927.2	850.6	76.6	0.3919	10.39_{16}	0.09624_{151}	267
68	40.582_{677}	237.2	1163.7	926.5	849.8	76.7	0.3933	10.23_{16}	0.09775_{152}	268
69	41.259_{686}	238.2	1164.0	925.8	849.0	76.8	0.3947	10.07_{15}	0.09927_{153}	269
70	41.945_{695}	239.3	1164.3	925.0	848.1	76.9	0.3961	9.918_{152}	0.1008_{16}	270
71	42.640_{705}	240.3	1164.6	924.3	847.4	76.9	0.3975	9.766_{149}	0.1024_{16}	271
72	43.345_{714}	241.3	1164.9	923.6	846.6	77.0	0.3988	9.617_{146}	0.1040_{16}	272
73	44.059_{723}	242.3	1165.2	922.9	845.8	77.1	0.4002	9.471_{143}	0.1056_{16}	273
74	44.782_{733}	243.3	1165.5	922.2	845.0	77.2	0.4016	9.328_{141}	0.1072_{16}	274
75	45.515_{743}	244.3	1165.8	921.5	844.2	77.3	0.4030	9.187_{138}	0.1088_{17}	275
76	46.258_{753}	245.3	1166.1	920.8	843.5	77.3	0.4043	9.049_{136}	0.1105_{17}	276
77	47.011_{762}	246.3	1166.4	920.1	842.7	77.4	0.4057	8.913_{133}	0.1122_{17}	277
78	47.773_{772}	247.3	1166.7	919.4	841.9	77.5	0.4071	8.780_{131}	0.1139_{17}	278
79	48.545_{783}	248.3	1167.0	918.7	841.1	77.6	0.4084	8.649_{128}	0.1156_{17}	279
80	49.328_{792}	249.3	1167.3	918.0	840.4	77.6	0.4098	8.521_{126}	0.1173_{18}	280
81	50.12_{80}	250.3	1167.6	917.3	839.6	77.7	0.4112	8.395_{124}	0.1191_{18}	281
82	50.92_{82}	251.4	1168.0	916.6	838.8	77.8	0.4125	8.271_{122}	0.1209_{18}	282
83	51.74_{82}	252.4	1168.3	915.9	838.0	77.9	0.4139	8.149_{119}	0.1227_{18}	283
84	52.56_{83}	253.4	1168.6	915.2	837.2	78.0	0.4152	8.030_{117}	0.1245_{19}	284
85	53.39_{85}	254.4	1168.9	914.5	836.5	78.0	0.4166	7.913_{116}	0.1264_{19}	285
86	54.24_{85}	255.4	1169.2	913.8	835.7	78.1	0.4179	7.797_{113}	0.1283_{19}	286
87	55.09_{87}	256.4	1169.5	913.1	834.9	78.2	0.4193	7.684_{111}	0.1302_{19}	287
88	55.96_{87}	257.4	1169.8	912.4	834.1	78.3	0.4206	7.573_{109}	0.1321_{19}	288
89	56.83_{89}	258.4	1170.1	911.7	833.4	78.3	0.4220	7.464_{108}	0.1340_{19}	289
90	57.72_{90}	259.4	1170.4	911.0	832.6	78.4	0.4233	7.356_{105}	0.1359_{20}	290
91	58.62_{91}	260.4	1170.7	910.3	831.8	78.5	0.4247	7.251_{103}	0.1379_{20}	291
92	59.53_{92}	261.4	1171.0	909.6	831.0	78.6	0.4260	7.148_{102}	0.1399_{20}	292
93	60.45_{93}	262.4	1171.3	908.9	830.3	78.6	0.4273	7.046_{100}	0.1419_{21}	293
94	61.38_{95}	263.4	1171.6	908.2	829.5	78.7	0.4287	6.946_{99}	0.1440_{21}	294
95	62.33_{95}	264.5	1171.9	907.4	828.6	78.8	0.4300	6.847_{97}	0.1461_{21}	295
96	63.28_{97}	265.5	1172.2	906.7	827.8	78.9	0.4313	6.750_{95}	0.1482_{21}	296
97	64.25_{98}	266.5	1172.5	906.0	827.0	79.0	0.4327	6.655_{93}	0.1503_{21}	297
98	65.23_{99}	267.5	1172.8	905.3	826.3	79.0	0.4340	6.562_{92}	0.1524_{21}	298
99	66.22_{100}	268.5	1173.1	904.6	825.5	79.1	0.4353	6.470_{90}	0.1545_{22}	299
00	67.22_{102}	269.5	1173.4	903.9	824.7	79.2	0.4366	6.380_{88}	0.1567_{22}	300
01	68.24_{103}	270.5	1173.7	903.2	823.9	79.3	0.4380	6.292_{87}	0.1589_{22}	301
02	69.27_{103}	271.5	1174.1	902.6	823.3	79.3	0.4393	6.205_{86}	0.1611_{23}	302
03	70.30_{106}	272.5	1174.4	901.9	822.5	79.4	0.4406	6.119_{84}	0.1634_{23}	303

SATURATED STEAM — *Continued.*

									DENSITY.	
Temperature, Degrees Fahr. t	Pressure, Pounds per Square Inch. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	Weight, in Pounds, of one Cubic Foot. γ	Temperature, Degrees Fahr. t
304	71.36_{106}	273.5	1174.7	901.2	821.7	79.5	0.4419	6.035_{83}	0.1657_{23}	**304**
305	72.42_{108}	274.5	1175.0	900.5	820.9	79.6	0.4433	5.952_{81}	0.1680_{23}	**305**
306	73.50_{109}	275.5	1175.3	899.8	820.1	79.7	0.4446	5.871_{80}	0.1703_{24}	**306**
307	74.59_{110}	276.6	1175.6	899.0	819.3	79.7	0.4459	5.791_{79}	0.1727_{24}	**307**
308	75.69_{111}	277.6	1175.9	898.3	818.5	79.8	0.4472	5.712_{78}	0.1751_{24}	**308**
309	76.80_{113}	278.6	1176.2	897.6	817.7	79.9	0.4485	5.634_{76}	0.1775_{24}	**309**
310	77.93_{114}	279.6	1176.5	896.9	817.0	79.9	0.4498	5.558_{74}	0.1799_{24}	**310**
311	79.07_{116}	280.6	1176.8	896.2	816.2	80.0	0.4511	5.484_{74}	0.1823_{25}	**311**
312	80.23_{116}	281.6	1177.1	895.5	815.4	80.1	0.4524	5.410_{73}	0.1848_{25}	**312**
313	81.39_{118}	282.7	1177.4	894.7	814.5	80.2	0.4538	5.337_{71}	0.1873_{26}	**313**
314	82.57_{120}	283.7	1177.7	894.0	813.8	80.2	0.4552	5.266_{71}	0.1899_{26}	**314**
315	83.77_{121}	284.8	1178.0	893.2	812.9	80.3	0.4565	5.195_{69}	0.1925_{26}	**315**
316	84.98_{122}	285.8	1178.3	892.5	812.1	80.4	0.4579	5.126_{68}	0.1951_{26}	**316**
317	86.20_{123}	286.9	1178.6	891.7	811.3	80.4	0.4592	5.058_{67}	0.1977_{27}	**317**
318	87.43_{125}	287.9	1178.9	891.0	810.5	80.5	0.4606	4.991_{66}	0.2004_{27}	**318**
319	88.68_{127}	289.0	1179.2	890.2	809.6	80.6	0.4619	4.925_{64}	0.2031_{27}	**319**
320	89.95_{128}	290.0	1179.5	889.5	808.8	80.7	0.4633	4.861_{64}	0.2058_{27}	**320**
321	91.23_{129}	291.0	1179.8	888.8	808.1	80.7	0.4646	4.797_{62}	0.2085_{27}	**321**
322	92.52_{130}	292.1	1180.2	888.1	807.3	80.8	0.4659	4.735_{62}	0.2112_{28}	**322**
323	93.82_{132}	293.1	1180.5	887.4	806.5	80.9	0.4672	4.673_{61}	0.2140_{28}	**323**
324	95.14_{134}	294.2	1180.8	886.6	805.7	80.9	0.4686	4.612_{60}	0.2168_{29}	**324**
325	96.48_{135}	295.2	1181.1	885.9	804.9	81.0	0.4699	4.552_{59}	0.2197_{29}	**325**
326	97.83_{137}	296.3	1181.4	885.1	804.1	81.1	0.4713	4.493_{57}	0.2226_{29}	**326**
327	99.20_{138}	297.3	1181.7	884.4	803.3	81.1	0.4726	4.436_{57}	0.2255_{29}	**327**
328	100.58_{139}	298.4	1182.0	883.6	802.4	81.2	0.4739	4.379_{56}	0.2284_{29}	**328**
329	101.97_{141}	299.4	1182.3	882.9	801.6	81.3	0.4752	4.323_{56}	0.2313_{30}	**329**
330	103.38_{143}	300.5	1182.6	882.1	800.8	81.3	0.4766	4.267_{54}	0.2343_{31}	**330**
331	104.81_{144}	301.5	1182.9	881.4	800.0	81.4	0.4779	4.213_{54}	0.2374_{30}	**331**
332	106.25_{145}	302.6	1183.2	880.6	799.1	81.5	0.4792	4.159_{52}	0.2404_{31}	**332**
333	107.70_{147}	303.6	1183.5	879.9	798.4	81.5	0.4805	4.107_{52}	0.2435_{31}	**333**
334	109.17_{149}	304.6	1183.8	879.2	797.6	81.6	0.4818	4.055_{51}	0.2466_{32}	**334**
335	110.66_{151}	305.7	1184.1	878.4	796.7	81.7	0.4832	4.004_{50}	0.2498_{31}	**335**
336	112.17_{152}	306.7	1184.4	877.7	796.0	81.7	0.4845	3.954_{50}	0.2529_{32}	**336**
337	113.69_{153}	307.8	1184.7	876.9	795.1	81.8	0.4858	3.904_{49}	0.2561_{33}	**337**
338	115.22_{155}	308.8	1185.0	876.2	794.3	81.9	0.4871	3.855_{48}	0.2594_{33}	**338**
339	116.77_{157}	309.9	1185.3	875.4	793.5	81.9	0.4884	3.807_{47}	0.2627_{33}	**339**
340	118.34_{159}	310.9	1185.6	874.7	792.7	82.0	0.4897	3.760_{47}	0.2660_{33}	**340**
341	119.93_{160}	312.0	1185.9	873.9	791.8	82.1	0.4910	3.713_{45}	0.2693_{33}	**341**
342	121.53_{162}	313.0	1186.3	873.3	791.2	82.1	0.4923	3.668_{45}	0.2726_{34}	**342**
343	123.15_{163}	314.1	1186.6	872.5	790.3	82.2	0.4936	8.623_{45}	0.2760_{35}	**343**

SATURATED STEAM—*Continued.*

Temperature, Degrees Fahr. *t*	Pressure, Pounds per Square Inch. *p*	Heat of the Liquid. *q*	Total Heat. λ	Heat of Vaporization. *r*	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. *Apu*	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. *s*	Density. Weight, in Pounds, of one Cubic Foot. γ	Temperature, Degrees Fahr. *t*
344	124.78_{165}	315.1	1186.9	871.8	789.5	82.3	0.4949	3.578_{44}	0.2795_{35}	**344**
345	126.43_{167}	316.1	1187.2	871.1	788.8	82.3	0.4962	3.534_{43}	0.2830_{35}	**345**
346	128.10_{169}	317.2	1187.5	870.3	787.9	82.4	0.4975	3.491_{42}	0.2865_{35}	**346**
347	129.79_{170}	318.2	1187.8	869.6	787.1	82.5	0.4988	3.449_{42}	0.2900_{35}	**347**
348	131.49_{172}	319.3	1188.1	868.8	786.3	82.5	0.5001	3.407_{42}	0.2935_{36}	**348**
349	133.21_{174}	320.3	1188.4	868.1	785.5	82.6	0.5014	3.365_{41}	0.2971_{37}	**349**
350	134.95_{176}	321.4	1188.7	867.3	784.7	82.6	0.5027	3.324_{40}	0.3008_{37}	**350**
351	136.71_{177}	322.4	1189.0	866.6	783.9	82.7	0.5040	3.284_{39}	0.3045_{37}	**351**
352	138.48_{179}	323.5	1189.3	865.8	783.0	82.8	0.5053	3.245_{39}	0.3082_{37}	**352**
353	140.27_{181}	324.5	1189.6	865.1	782.3	82.8	0.5066	3.206_{38}	0.3119_{38}	**353**
354	142.08_{183}	325.6	1189.9	864.3	781.4	82.9	0.5078	3.168_{38}	0.3157_{38}	**354**
355	143.91_{184}	326.6	1190.2	863.6	780.7	82.9	0.5091	3.130_{38}	0.3195_{39}	**355**
356	145.75_{187}	327.7	1190.5	862.8	779.8	83.0	0.5104	3.092_{36}	0.3234_{38}	**356**
357	147.62_{188}	328.7	1190.8	862.1	779.0	83.1	0.5117	3.056_{36}	0.3272_{39}	**357**
358	149.50_{190}	329.7	1191.1	861.4	778.3	83.1	0.5130	3.020_{36}	0.3311_{40}	**358**
359	151.40_{193}	330.8	1191.4	860.6	777.4	83.2	0.5142	2.984_{35}	0.3351_{40}	**359**
360	153.33_{194}	331.8	1191.7	859.9	776.7	83.2	0.5155	2.949_{35}	0.3391_{40}	**360**
361	155.27_{195}	332.9	1192.0	859.1	775.8	83.3	0.5168	2.914_{34}	0.3431_{41}	**361**
362	157.22_{198}	333.9	1192.4	858.5	775.2	83.3	0.5181	2.880_{34}	0.3472_{41}	**362**
363	159.20_{200}	335.0	1192.7	857.7	774.3	83.4	0.5193	2.846_{33}	0.3513_{42}	**363**
364	161.20_{202}	336.0	1193.0	857.0	773.5	83.5	0.5206	2.813_{33}	0.3555_{42}	**364**
365	163.22_{203}	337.1	1193.3	856.2	772.7	83.5	0.5219	2.780_{32}	0.3597_{42}	**365**
366	165.25_{206}	338.1	1193.6	855.5	771.9	83.6	0.5231	2.748_{32}	0.3639_{43}	**366**
367	167.31_{208}	339.2	1193.9	854.7	771.1	83.6	0.5244	2.716_{31}	0.3682_{43}	**367**
368	169.39_{209}	340.2	1194.2	854.0	770.4	83.6	0.5257	2.685_{31}	0.3725_{43}	**368**
369	171.48_{212}	341.3	1194.5	853.2	769.5	83.7	0.5269	2.654_{31}	0.3768_{44}	**369**
370	173.60_{214}	342.3	1194.8	852.5	768.7	83.8	0.5282	2.623_{30}	0.3812_{44}	**370**
371	175.74_{215}	343.3	1195.1	851.8	768.0	83.8	0.5294	2.593_{30}	0.3856_{45}	**371**
372	177.89_{218}	344.4	1195.4	851.0	767.1	83.9	0.5307	2.563_{29}	0.3901_{45}	**372**
373	180.07_{220}	345.5	1195.7	850.2	766.3	83.9	0.5320	2.534_{29}	0.3946_{46}	**373**
374	182.27_{222}	346.5	1196.0	849.5	765.5	84.0	0.5332	2.505_{29}	0.3992_{46}	**374**
375	184.49_{224}	347.5	1196.3	848.8	764.8	84.0	0.5345	2.476_{28}	0.4038_{46}	**375**
376	186.73_{226}	348.6	1196.6	848.0	763.9	84.1	0.5357	2.448_{28}	0.4084_{47}	**376**
377	188.99_{228}	349.6	1196.9	847.3	763.2	84.1	0.5370	2.420_{27}	0.4131_{47}	**377**
378	191.27_{231}	350.6	1197.2	846.6	762.4	84.2	0.5382	2.393_{27}	0.4178_{49}	**378**
379	193.58_{233}	351.7	1197.5	845.8	761.6	84.2	0.5395	2.366_{28}	0.4227_{49}	**379**
380	195.91_{234}	352.8	1197.8	845.0	760.8	84.2	0.5407	2.338_{25}	0.4276_{47}	**380**
381	198.25_{237}	353.8	1198.1	844.3	760.0	84.3	0.5420	2.313_{26}	0.4323_{49}	**381**
382	200.62_{239}	354.9	1198.5	843.6	759.3	84.3	0.5432	2.287_{25}	0.4372_{49}	**382**
383	203.01_{242}	355.9	1198.8	842.9	758.5	84.4	0.5444	2.262_{25}	0.4421_{49}	**383**

SATURATED STEAM — *Continued.*

Temperature, Degrees Fahr. t	Pressure, Pounds per Square Inch. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{dt}{T}$	Specific Volume. s	Density. Weight, in Pounds, of one Cubic Foot. γ	Temperature, Degrees Fahr. t
384	205.43_{244}	356.9	1199.1	842.2	757.8	84.4	0.5457	2.237_{25}	0.4470_{51}	384
385	207.87_{246}	358.0	1199.4	841.4	756.9	84.5	0.5469	2.212_{25}	0.4521_{51}	385
386	210.33_{248}	359.0	1199.7	840.7	756.2	84.5	0.5481	2.187_{24}	0.4572_{51}	386
387	212.81_{250}	360.1	1200.0	839.9	755.3	84.6	0.5494	2.163_{24}	0.4623_{52}	387
388	215.31_{253}	361.1	1200.3	839.2	754.6	84.6	0.5506	2.139_{24}	0.4675_{53}	388
389	217.84_{255}	362.2	1200.6	838.4	753.8	84.6	0.5518	2.115_{23}	0.4728_{52}	389
390	220.39_{257}	363.2	1200.9	837.7	753.0	84.7	0.5531	2.092_{23}	0.4780_{53}	390
391	222.96_{260}	364.3	1201.2	836.9	752.2	84.7	0.5543	2.069_{23}	0.4833_{54}	391
392	225.56_{263}	365.3	1201.5	836.2	751.4	84.8	0.5555	2.046_{22}	0.4887_{54}	392
393	228.19_{264}	366.4	1201.8	835.4	750.6	84.8	0.5568	2.024_{22}	0.4941_{55}	393
394	230.83_{267}	367.4	1202.1	834.7	749.9	84.8	0.5580	2.002_{22}	0.4996_{55}	394
395	233.50_{269}	368.4	1202.4	834.0	749.1	84.9	0.5592	1.980_{22}	0.5051_{56}	395
396	236.19_{272}	369.5	1202.7	833.2	748.3	84.9	0.5604	1.958_{21}	0.5107_{56}	396
397	238.91_{274}	370.5	1203.0	832.5	747.6	84.9	0.5616	1.937_{21}	0.5163_{56}	397
398	241.65_{277}	371.6	1203.3	831.7	746.7	85.0	0.5629	1.916_{21}	0.5219_{58}	398
399	244.42_{279}	372.6	1203.6	831.0	746.0	85.0	0.5641	1.895_{21}	0.5277_{59}	399
400	247.21_{282}	373.7	1203.9	830.2	745.2	85.0	0.5653	1.874_{20}	0.5336_{58}	400
401	250.03_{284}	374.7	1204.2	829.5	744.5	85.0	0.5665	1.854_{20}	0.5394_{58}	401
402	252.87_{287}	375.8	1204.6	828.8	743.7	85.1	0.5677	1.834_{20}	0.5452_{60}	402
403	255.74_{289}	376.8	1204.9	828.1	743.0	85.1	0.5689	1.814_{20}	0.5512_{60}	403
404	258.63_{292}	377.9	1205.2	827.3	742.2	85.1	0.5701	1.794_{19}	0.5572_{61}	404
405	261.55_{295}	378.9	1205.5	826.6	741.4	85.2	0.5714	1.775_{19}	0.5633_{62}	405
406	264.50_{297}	380.0	1205.8	825.8	740.6	85.2	0.5726	1.756_{19}	0.5695_{61}	406
407	267.47_{300}	381.0	1206.1	825.1	739.9	85.2	0.5738	1.737_{18}	0.5756_{62}	407
408	270.47_{302}	382.0	1206.4	824.4	739.2	85.2	0.5750	1.719_{19}	0.5818_{63}	408
409	273.49_{305}	383.1	1206.7	823.6	738.3	85.3	0.5762	1.700_{18}	0.5881_{64}	409
410	276.54_{308}	384.1	1207.0	822.9	737.6	85.3	0.5774	1.682_{18}	0.5945_{65}	410
411	279.62_{311}	385.2	1207.3	822.1	736.8	85.3	0.5786	1.664_{18}	0.601_{6}	411
412	282.73_{313}	386.2	1207.6	821.4	736.1	85.3	0.5798	1.646_{17}	0.607_{7}	412
413	285.86_{316}	387.3	1207.9	820.6	735.3	85.3	0.5810	1.629_{17}	0.614_{6}	413
414	289.02_{319}	388.3	1208.2	819.9	734.5	85.4	0.5822	1.612_{17}	0.620_{7}	414
415	292.21_{321}	389.4	1208.5	819.1	733.7	85.4	0.5834	1.595_{17}	0.627_{7}	415
416	295.42_{325}	390.4	1208.8	818.4	733.0	85.4	0.5846	1.578_{17}	0.634_{7}	416
417	298.67_{327}	391.5	1209.1	817.6	732.2	85.4	0.5858	1.561_{16}	0.641_{6}	417
418	301.94_{330}	392.5	1209.4	816.9	731.5	85.4	0.5870	1.545_{17}	0.647_{7}	418
419	305.24_{333}	393.6	1209.7	816.1	730.7	85.4	0.5881	1.528_{16}	0.654_{7}	419
420	308.57_{336}	394.6	1210.0	815.4	730.0	85.4	0.5893	1.512_{16}	0.661_{7}	420
421	311.93_{338}	395.6	1210.3	814.7	729.3	85.4	0.5905	1.496_{16}	0.668_{8}	421
422	315.31_{342}	396.7	1210.7	814.0	728.5	85.5	0.5917	1.480_{15}	0.676_{7}	422
423	318.73_{345}	397.7	1211.0	813.3	727.8	85.5	0.5929	1.465_{16}	0.683_{7}	423

SATURATED STEAM — *Continued.*

Temperature, Degrees Fahr. t	Pressure, Pounds per Square Inch. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int \frac{cdt}{T}$	Specific Volume. s	DENSITY. Weight, in Pounds, of one Cubic Foot. γ	Temperature, Degrees Fahr. t
424	322.18 347	398.8	1211.3	812.5	727.0	85.5	0.5941	1.449 15	0.690 7	**424**
425	325.65 351	399.8	1211.6	811.8	726.3	85.5	0.5953	1.434 15	0.697 8	**425**
426	329.16 354	400.9	1211.9	811.0	725.5	85.5	0.5964	1.419 15	0.705 7	**426**
427	332.70 356	401.9	1212.2	810.3	724.8	85.5	0.5976	1.404 14	0.712 7	**427**
428	336.26	403.0	1212.5	809.5	724.0	85.5	0.5988	1.390	0.719	**428**

TABLE II.

SATURATED STEAM.

ENGLISH UNITS.

Pressure, Pounds per Square Inch. p	Temperature, Degrees Fahr. t	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int \frac{c\,dt}{T}$	Specific Volume. s	Density. Weight, in Pounds, of one Cubic Foot. γ	Pressure, Pounds per Square Inch. p
1	101.99_{2428}	70.0	1113.1	1043.0	981.1	61.9	0.1329	$334.6_{161.0}$	0.00299_{277}	1
2	126.27_{1535}	94.4	1120.5	1026.1	961.9	64.2	0.1754	$173.6_{55.2}$	0.00576_{268}	2
3	141.62_{1147}	109.8	1125.1	1015.3	949.5	65.8	0.2013	$118.4_{28.1}$	0.00844_{263}	3
4	153.09_{925}	121.4	1128.6	1007.2	940.4	66.8	0.2203	$90.31_{17.09}$	0.01107_{259}	4
5	162.34_{780}	130.7	1131.5	1000.8	933.1	67.7	0.2353	$73.22_{11.55}$	0.01366_{256}	5
6	170.14_{676}	138.6	1133.8	995.2	926.7	68.5	0.2480	$61.67_{8.30}$	0.01622_{252}	6
7	176.90_{602}	145.4	1135.9	990.5	921.4	69.1	0.2587	$53.37_{6.30}$	0.01874_{251}	7
8	182.92_{541}	151.5	1137.7	986.2	916.5	69.7	0.2682	$47.07_{4.94}$	0.02125_{249}	8
9	188.33_{492}	156.9	1139.4	982.5	912.4	70.1	0.2766	$42.13_{3.97}$	0.02374_{247}	9
10	193.25_{453}	161.9	1140.9	979.0	908.4	70.6	0.2842	$38.16_{3.28}$	0.02621_{245}	10
11	197.78_{420}	166.5	1142.3	975.8	904.8	71.0	0.2912	$34.88_{2.74}$	0.02866_{245}	11
12	201.98_{391}	170.7	1143.6	972.9	901.5	71.4	0.2976	$32.14_{2.32}$	0.03111_{244}	12
13	205.89_{368}	174.6	1144.7	970.1	898.4	71.7	0.3035	$29.82_{2.03}$	0.03355_{245}	13
14	209.57_{346}	178.3	1145.8	967.5	895.5	72.0	0.3091	$27.79_{1.64}$	0.03600_{226}	14
15	213.03_{329}	181.8	1146.9	965.1	892.6	72.5	0.3143	$26.15_{1.56}$	0.03826_{241}	15
16	216.32_{312}	185.1	1147.9	962.8	890.0	72.8	0.3192	$24.59_{1.37}$	0.04067_{240}	16
17	219.44_{296}	188.3	1148.9	960.6	887.6	73.0	0.3238	$23.22_{1.22}$	0.04307_{240}	17
18	222.40_{284}	191.3	1149.8	958.5	885.3	73.2	0.3282	$22.00_{1.10}$	0.04547_{239}	18
19	225.24_{271}	194.1	1150.7	956.6	883.2	73.4	0.3324	$20.90_{0.99}$	0.04786_{237}	19
20	227.95_{260}	196.9	1151.5	954.6	881.0	73.6	0.3363	19.91_{90}	0.05023_{236}	20
21	230.55_{251}	199.5	1152.3	952.8	879.0	73.8	0.3401	19.01_{81}	0.05259_{236}	21
22	233.06_{241}	202.0	1153.0	951.0	877.0	74.0	0.3438	18.20_{75}	0.05495_{236}	22
23	235.47_{232}	204.5	1153.7	949.2	875.0	74.2	0.3473	17.45_{69}	0.05731_{235}	23
24	237.79_{225}	206.8	1154.4	947.6	873.2	74.4	0.3506	16.76_{63}	0.05966_{233}	24
25	240.04_{217}	209.1	1155.1	946.0	871.5	74.5	0.3539	16.13_{58}	0.06199_{233}	25
26	242.21_{211}	211.2	1155.8	944.6	869.9	74.7	0.3570	15.55_{55}	0.06432_{234}	26
27	244.32_{204}	213.4	1156.5	943.1	868.2	74.9	0.3600	15.00_{51}	0.06666_{233}	27
28	246.36_{198}	215.4	1157.1	941.7	866.7	75.0	0.3629	14.49_{46}	0.06899_{231}	28
29	248.34_{193}	217.4	1157.7	940.3	865.1	75.2	0.3657	14.03_{44}	0.07130_{230}	29
30	250.27_{188}	219.4	1158.3	938.9	863.6	75.3	0.3685	13.59_{41}	0.07360_{230}	30
31	252.15_{183}	221.3	1158.8	937.5	862.0	75.5	0.3712	13.18_{40}	0.07590_{231}	31
32	253.98_{178}	223.1	1159.4	936.3	860.7	75.6	0.3737	12.78_{37}	0.07821_{230}	32
33	255.76_{174}	224.9	1159.9	935.0	859.2	75.8	0.3762	12.41_{34}	0.08051_{229}	33

SATURATED STEAM — *Continued.*

Pressure, Pounds per Square Inch. p	Temperature, Degrees Fahr. t	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	Density. Weight, in Pounds, of one Cubic Foot. γ	Pressure, Pounds per Square Inch. p
34	257.50$_{169}$	226.7	1160.4	933.7	857.8	75.9	0.3787	12.07$_{32}$	0.08280$_{228}$	**34**
35	259.19$_{166}$	228.4	1161.0	932.6	856.6	76.0	0.3811	11.75$_{30}$	0.08508$_{228}$	**35**
36	260.85$_{162}$	230.0	1161.5	931.5	855.3	76.2	0.3834	11.45$_{29}$	0.08736$_{228}$	**36**
37	262.47$_{159}$	231.7	1162.0	930.3	854.0	76.3	0.3856	11.16$_{28}$	0.08964$_{227}$	**37**
38	264.06$_{155}$	233.3	1162.5	929.2	852.8	76.4	0.3878	10.88$_{26}$	0.09191$_{226}$	**38**
39	265.61$_{151}$	234.8	1163.0	928.2	851.7	76.5	0.3900	10.62$_{25}$	0.09417$_{227}$	**39**
40	267.13$_{149}$	236.4	1163.4	927.0	850.3	76.7	0.3921	10.37$_{24}$	0.09644$_{225}$	**40**
41	268.62$_{146}$	237.9	1163.9	926.0	849.2	76.8	0.3942	10.13$_{22}$	0.09869$_{221}$	**41**
42	270.08$_{143}$	239.3	1164.3	925.0	848.1	76.9	0.3962	9.906$_{216}$	0.1009$_{23}$	**42**
43	271.51$_{140}$	240.8	1164.8	924.0	847.0	77.0	0.3982	9.690$_{206}$	0.1032$_{22}$	**43**
44	272.91$_{138}$	242.2	1165.2	923.0	845.9	77.1	0.4001	9.484$_{197}$	0.1054$_{23}$	**44**
45	274.29$_{136}$	243.6	1165.6	922.0	844.8	77.2	0.4020	9.287$_{190}$	0.1077$_{22}$	**45**
46	275.65$_{134}$	245.0	1166.0	921.0	843.7	77.3	0.4038	9.097$_{183}$	0.1099$_{23}$	**46**
47	276.99$_{131}$	246.3	1166.4	920.1	842.7	77.4	0.4056	8.914$_{174}$	0.1122$_{22}$	**47**
48	278.30$_{128}$	247.6	1166.8	919.2	841.7	77.5	0.4074	8.740$_{167}$	0.1144$_{22}$	**48**
49	279.58$_{127}$	248.9	1167.2	918.3	840.7	77.6	0.4092	8.573$_{159}$	0.1166$_{22}$	**49**
50	280.85$_{125}$	250.2	1167.6	917.4	839.7	77.7	0.4109	8.414$_{155}$	0.1188$_{23}$	**50**
51	282.10$_{122}$	251.5	1168.0	916.5	838.7	77.8	0.4126	8.259$_{149}$	0.1211$_{22}$	**51**
52	283.32$_{121}$	252.7	1168.4	915.7	837.8	77.9	0.4143	8.110$_{142}$	0.1233$_{22}$	**52**
53	284.53$_{119}$	253.9	1168.7	914.8	836.8	78.0	0.4160	7.968$_{138}$	0.1255$_{22}$	**53**
54	285.72$_{117}$	255.1	1169.1	914.0	835.9	78.1	0.4175	7.829$_{133}$	0.1277$_{22}$	**54**
55	286.89$_{116}$	256.3	1169.4	913.1	834.9	78.2	0.4191	7.696$_{128}$	0.1299$_{22}$	**55**
56	288.05$_{114}$	257.5	1169.8	912.3	834.0	78.3	0.4207	7.568$_{125}$	0.1321$_{23}$	**56**
57	289.19$_{112}$	258.6	1170.1	911.5	833.1	78.4	0.4222	7.443$_{120}$	0.1344$_{22}$	**57**
58	290.31$_{111}$	259.7	1170.5	910.8	832.4	78.4	0.4237	7.323$_{115}$	0.1366$_{21}$	**58**
59	291.42$_{109}$	260.8	1170.8	910.0	831.5	78.5	0.4252	7.208$_{112}$	0.1387$_{22}$	**59**
60	292.51$_{108}$	261.9	1171.2	909.3	830.7	78.6	0.4267	7.096$_{109}$	0.1409$_{22}$	**60**
61	293.59$_{106}$	263.0	1171.5	908.5	829.8	78.7	0.4281	6.987$_{105}$	0.1431$_{22}$	**61**
62	294.65$_{105}$	264.1	1171.8	907.7	828.9	78.8	0.4295	6.882$_{103}$	0.1453$_{22}$	**62**
63	295.70$_{104}$	265.2	1172.1	906.9	828.0	78.9	0.4309	6.779$_{99}$	0.1475$_{22}$	**63**
64	296.74$_{103}$	266.2	1172.4	906.2	827.3	78.9	0.4323	6.680$_{97}$	0.1497$_{22}$	**64**
65	297.77$_{101}$	267.2	1172.7	905.5	826.5	79.0	0.4337	6.583$_{93}$	0.1519$_{22}$	**65**
66	298.78$_{99}$	268.3	1173.0	904.7	825.6	79.1	0.4350	6.490$_{89}$	0.1541$_{21}$	**66**
67	299.77$_{99}$	269.3	1173.3	904.0	824.8	79.2	0.4363	6.401$_{87}$	0.1562$_{22}$	**67**
68	300.76$_{98}$	270.3	1173.6	903.3	824.1	79.2	0.4376	6.314$_{86}$	0.1584$_{22}$	**68**
69	301.74$_{97}$	271.2	1173.9	902.7	823.4	79.3	0.4389	6.228$_{84}$	0.1606$_{22}$	**69**
70	302.71$_{95}$	272.2	1174.3	902.1	822.7	79.4	0.4402	6.144$_{81}$	0.1628$_{21}$	**70**
71	303.66$_{95}$	273.2	1174.6	901.4	821.9	79.5	0.4415	6.063$_{79}$	0.1649$_{22}$	**71**
72	304.61$_{93}$	274.1	1174.9	900.8	821.3	79.5	0.4428	5.984$_{76}$	0.1671$_{22}$	**72**
73	305.54$_{92}$	275.1	1175.2	900.1	820.5	79.6	0.4440	5.908$_{74}$	0.1693$_{21}$	**73**

SATURATED STEAM—*Continued.*

Pressure, Pounds per Square Inch. p	Temperature, Degrees Fahr. t	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{dq}{T}$	Specific Volume. s	DENSIT
									Weight, in Pounds, of one Cubic γ
74	306.46_{92}	276.0	1175.4	899.4	819.7	79.7	0.4452	5.834_{72}	0.1714
75	307.38_{90}	276.9	1175.7	898.8	819.1	79.7	0.4464	5.762_{71}	0.173
76	308.28_{90}	277.8	1176.0	898.2	818.4	79.8	0.4476	5.691_{70}	0.175
77	309.18_{88}	278.7	1176.2	897.5	817.6	79.9	0.4487	5.621_{67}	0.1779
78	310.06_{88}	279.6	1176.5	896.9	817.0	79.9	0.4499	5.554_{66}	0.1801
79	310.94_{86}	280.5	1176.8	896.3	816.3	80.0	0.4511	5.488_{63}	0.1822
80	311.80_{86}	281.4	1177.0	895.6	815.5	80.1	0.4522	5.425_{63}	0.1843
81	312.66_{85}	282.3	1177.3	895.0	814.9	80.1	0.4534	5.362_{61}	0.1865
82	313.51_{85}	283.2	1177.6	894.4	814.2	80.2	0.4545	5.301_{61}	0.188
83	314.36_{83}	284.1	1177.8	893.7	813.4	80.3	0.4557	5.240_{58}	0.190
84	315.19_{83}	285.0	1178.1	893.1	812.8	80.3	0.4568	5.182_{57}	0.193
85	316.02_{82}	285.8	1178.3	892.5	812.1	80.4	0.4579	5.125_{56}	0.1951
86	316.84_{81}	286.7	1178.6	891.9	811.5	80.4	0.4590	5.069_{55}	0.197
87	317.65_{80}	287.5	1178.8	891.3	810.8	80.5	0.4601	5.014_{53}	0.199
88	318.45_{80}	288.4	1179.1	890.7	810.2	80.5	0.4612	4.961_{52}	0.201
89	319.25_{79}	289.2	1179.3	890.1	809.5	80.6	0.4622	4.909_{51}	0.203
90	320.04_{77}	290.0	1179.6	889.6	808.9	80.7	0.4633	4.858_{50}	0.205
91	320.83_{77}	290.8	1179.8	889.0	808.3	80.7	0.4643	4.808_{48}	0.208
92	321.60_{77}	291.6	1180.0	888.4	807.6	80.8	0.4653	4.760_{48}	0.210
93	322.37_{77}	292.4	1180.3	887.9	807.1	80.8	0.4663	4.712_{47}	0.212
94	323.14_{75}	293.2	1180.5	887.3	806.4	80.9	0.4673	4.665_{46}	0.214
95	323.89_{75}	294.0	1180.7	886.7	805.8	80.9	0.4683	4.619_{45}	0.216
96	324.64_{74}	294.8	1181.0	886.2	805.2	81.0	0.4693	4.574_{44}	0.218
97	325.38_{74}	295.6	1181.2	885.6	804.6	81.0	0.4703	4.530_{44}	0.220
98	326.12_{74}	296.4	1181.4	885.0	803.9	81.1	0.4713	4.486_{42}	0.222
99	326.86_{72}	297.1	1181.6	884.5	803.4	81.1	0.4723	4.444_{41}	0.225
100	327.58_{72}	297.9	1181.9	884.0	802.8	81.2	0.4733	4.403_{41}	0.227
101	328.30_{72}	298.6	1182.1	883.5	802.3	81.2	0.4743	4.362_{40}	0.22
102	329.02_{71}	299.4	1182.3	882.9	801.6	81.3	0.4753	4.322_{40}	0.231
103	329.73_{70}	300.1	1182.5	882.4	801.1	81.3	0.4762	4.282_{38}	0.23
104	330.43_{70}	300.9	1182.7	881.8	800.4	81.4	0.4771	4.244_{38}	0.23
105	331.13_{70}	301.6	1182.9	881.3	799.9	81.4	0.4780	4.206_{37}	0.23
106	331.83_{69}	302.3	1183.1	880.8	799.3	81.5	0.4790	4.169_{37}	0.23
107	332.52_{68}	303.0	1183.4	880.4	798.9	81.5	0.4799	4.132_{36}	0.24
108	333.20_{68}	303.8	1183.6	879.8	798.2	81.6	0.4808	4.096_{35}	0.24
109	333.88_{68}	304.5	1183.8	879.3	797.7	81.6	0.4817	4.061_{35}	0.24
110	334.56_{67}	305.2	1184.0	878.8	797.1	81.7	0.4826	4.026_{34}	0.24
111	335.23_{66}	305.9	1184.2	878.3	796.6	81.7	0.4835	3.992_{33}	0.25
112	335.89_{66}	306.6	1184.4	877.8	796.1	81.7	0.4843	3.959_{33}	0.25
113	336.55_{65}	307.3	1184.6	877.3	795.5	81.8	0.4852	3.926_{32}	0.25

SATURATED STEAM — *Continued.*

Pressure, Pounds per Square Inch. p	Temperature, Degrees Fahr. t	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{c\,dt}{T}$	Specific Volume. s	Density. Weight, in Pounds, of one Cubic Foot. γ	Pressure, Pounds per Square Inch. p
114	337.20$_{66}$	308.0	1184.8	876.8	795.0	81.8	0.4860	3.894$_{32}$	0.2568$_{21}$	**114**
115	337.86$_{64}$	308.7	1185.0	876.3	794.4	81.9	0.4869	3.862$_{31}$	0.2589$_{21}$	**115**
116	338.50$_{64}$	309.4	1185.2	875.8	793.9	81.9	0.4877	3.831$_{30}$	0.2610$_{21}$	**116**
117	339.14$_{64}$	310.0	1185.4	875.4	793.5	81.9	0.4886	3.801$_{31}$	0.2631$_{22}$	**117**
118	339.78$_{64}$	310.7	1185.6	874.9	792.9	82.0	0.4894	3.770$_{30}$	0.2653$_{21}$	**118**
119	340.42$_{63}$	311.4	1185.8	874.4	792.4	82.0	0.4903	3.740$_{29}$	0.2674$_{21}$	**119**
120	341.05$_{62}$	312.0	1186.0	874.0	791.9	82.1	0.4911	3.711$_{28}$	0.2695$_{20}$	**120**
121	341.67$_{62}$	312.7	1186.2	873.5	791.4	82.1	0.4919	3.683$_{28}$	0.2715$_{21}$	**121**
122	342.29$_{62}$	313.3	1186.3	873.0	790.8	82.2	0.4927	3.655$_{28}$	0.2736$_{21}$	**122**
123	342.91$_{61}$	314.0	1186.5	872.5	790.3	82.2	0.4935	3.627$_{28}$	0.2757$_{22}$	**123**
124	343.52$_{61}$	314.6	1186.7	872.1	789.9	82.2	0.4943	3.599$_{27}$	0.2779$_{21}$	**124**
125	344.13$_{60}$	315.2	1186.9	871.7	789.4	82.3	0.4951	3.572$_{26}$	0.2800$_{20}$	**125**
126	344.73$_{60}$	315.9	1187.1	871.2	788.9	82.3	0.4959	3.546$_{26}$	0.2820$_{21}$	**126**
127	345.33$_{60}$	316.5	1187.3	870.8	788.4	82.4	0.4967	3.520$_{26}$	0.2841$_{21}$	**127**
128	345.93$_{60}$	317.1	1187.4	870.3	787.9	82.4	0.4974	3.494$_{25}$	0.2862$_{21}$	**128**
129	346.53$_{59}$	317.7	1187.6	869.9	787.5	82.4	0.4982	3.469$_{25}$	0.2883$_{21}$	**129**
130	347.12$_{59}$	318.4	1187.8	869.4	786.9	82.5	0.4990	3.444$_{25}$	0.2904$_{21}$	**130**
131	347.71$_{58}$	319.0	1188.0	869.0	786.5	82.5	0.4997	3.419$_{24}$	0.2925$_{21}$	**131**
132	348.29$_{58}$	319.6	1188.2	868.6	786.1	82.5	0.5005	3.395$_{24}$	0.2946$_{21}$	**132**
133	348.87$_{58}$	320.2	1188.4	868.2	785.6	82.6	0.5012	3.371$_{24}$	0.2967$_{21}$	**133**
134	349.45$_{58}$	320.8	1188.5	867.7	785.1	82.6	0.5020	3.347$_{24}$	0.2988$_{21}$	**134**
135	350.03$_{57}$	321.4	1188.7	867.3	784.7	82.6	0.5027	3.323$_{23}$	0.3009$_{21}$	**135**
136	350.60$_{57}$	322.0	1188.9	866.9	784.2	82.7	0.5035	3.300$_{23}$	0.3030$_{21}$	**136**
137	351.17$_{56}$	322.6	1189.0	866.4	783.7	82.7	0.5042	3.277$_{22}$	0.3051$_{21}$	**137**
138	351.73$_{56}$	323.2	1189.2	866.0	783.3	82.7	0.5049	3.255$_{21}$	0.3072$_{20}$	**138**
139	352.29$_{56}$	323.8	1189.4	865.6	782.8	82.8	0.5056	3.234$_{22}$	0.3092$_{21}$	**139**
140	352.85$_{55}$	324.4	1189.5	865.1	782.3	82.8	0.5064	3.212$_{21}$	0.3113$_{21}$	**140**
141	353.40$_{55}$	325.0	1189.7	864.7	781.9	82.8	0.5071	3.191$_{21}$	0.3134$_{21}$	**141**
142	353.95$_{55}$	325.6	1189.9	864.3	781.4	82.9	0.5078	3.170$_{21}$	0.3155$_{21}$	**142**
143	354.50$_{55}$	326.1	1190.1	864.0	781.1	82.9	0.5085	3.149$_{21}$	0.3176$_{21}$	**143**
144	355.05$_{54}$	326.7	1190.2	863.5	780.6	82.9	0.5092	3.128$_{21}$	0.3197$_{21}$	**144**
145	355.59$_{54}$	327.2	1190.4	863.2	780.2	83.0	0.5099	3.107$_{20}$	0.3218$_{21}$	**145**
146	356.13$_{54}$	327.8	1190.6	862.8	779.8	83.0	0.5106	3.087$_{19}$	0.3239$_{20}$	**146**
147	356.67$_{53}$	328.3	1190.7	862.4	779.4	83.0	0.5113	3.068$_{19}$	0.3259$_{21}$	**147**
148	357.20$_{53}$	328.9	1190.9	862.0	778.9	83.1	0.5119	3.049$_{19}$	0.3280$_{20}$	**148**
149	357.73$_{53}$	329.4	1191.0	861.6	778.5	83.1	0.5126	3.030$_{19}$	0.3300$_{21}$	**149**
150	358.26$_{52}$	330.0	1191.2	861.2	778.1	83.1	0.5133	3.011$_{19}$	0.3321$_{21}$	**150**
151	358.78$_{52}$	330.5	1191.4	860.9	777.7	83.2	0.5140	2.992$_{19}$	0.3342$_{21}$	**151**
152	359.30$_{52}$	331.1	1191.5	860.4	777.2	83.2	0.5146	2.973$_{18}$	0.3363$_{21}$	**152**
153	359.82$_{52}$	331.6	1191.7	860.1	776.9	83.2	0.5153	2.955$_{18}$	0.3384$_{21}$	**153**

SATURATED STEAM—*Continued.*

Pressure, Pounds per Square Inch. p	Temperature, Degrees Fahr. t	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	DENSITY. Weight, in Pounds, of one Cubic Foot. γ	Pressure, Pounds per Square Inch. p
154	360.34_{52}	332.2	1191.8	859.6	776.3	83.3	0.5160	2.937_{18}	0.3405_{21}	154
155	360.86_{51}	332.7	1192.0	859.3	776.0	83.3	0.5166	2.919_{18}	0.3426_{21}	155
156	361.37_{51}	333.3	1192.2	858.9	775.6	83.3	0.5173	2.901_{17}	0.3447_{20}	156
157	361.88_{51}	333.8	1192.3	858.5	775.2	83.3	0.5179	2.884_{17}	0.3467_{21}	157
158	362.39_{51}	334.3	1192.5	858.2	774.8	83.4	0.5186	2.867_{17}	0.3488_{21}	158
159	362.90_{50}	334.9	1192.7	857.8	774.4	83.4	0.5192	2.850_{17}	0.3509_{21}	159
160	363.40_{50}	335.4	1192.8	857.4	774.0	83.4	0.5198	2.833_{17}	0.3530_{21}	160
161	363.90_{50}	335.9	1193.0	857.1	773.7	83.4	0.5205	2.816_{17}	0.3551_{21}	161
162	364.40_{50}	336.4	1193.1	856.7	773.2	83.5	0.5211	2.799_{16}	0.3572_{21}	162
163	364.90_{49}	337.0	1193.3	856.3	772.8	83.5	0.5217	2.783_{16}	0.3593_{21}	163
164	365.39_{49}	337.5	1193.4	855.9	772.4	83.5	0.5224	2.767_{16}	0.3614_{21}	164
165	365.88_{49}	338.0	1193.6	855.6	772.0	83.6	0.5230	2.751_{15}	0.3635_{20}	165
166	366.37_{48}	338.5	1193.7	855.2	771.6	83.6	0.5236	2.736_{15}	0.3655_{20}	166
167	366.85_{48}	339.0	1193.9	854.9	771.3	83.6	0.5242	2.721_{15}	0.3675_{20}	167
168	367.33_{48}	339.5	1194.0	854.5	770.9	83.6	0.5248	2.706_{15}	0.3695_{21}	168
169	367.81_{48}	340.0	1194.2	854.2	770.5	83.7	0.5254	2.691_{15}	0.3716_{21}	169
170	368.29_{48}	340.5	1194.3	853.8	770.1	83.7	0.5260	2.676_{15}	0.3737_{21}	170
171	368.77_{47}	341.0	1194.4	853.4	769.7	83.7	0.5266	2.661_{14}	0.3758_{20}	171
172	369.24_{47}	341.5	1194.6	853.1	769.4	83.7	0.5272	2.647_{15}	0.3778_{21}	172
173	369.71_{47}	342.0	1194.7	852.7	768.9	83.8	0.5278	2.632_{14}	0.3799_{21}	173
174	370.18_{47}	342.5	1194.8	852.3	768.5	83.8	0.5284	2.618_{15}	0.3820_{21}	174
175	370.65_{47}	343.0	1195.0	852.0	768.2	83.8	0.5290	2.603_{14}	0.3841_{21}	175
176	371.12_{47}	343.5	1195.1	851.6	767.8	83.8	0.5296	2.589_{14}	0.3862_{21}	176
177	371.59_{46}	344.0	1195.3	851.3	767.5	83.8	0.5302	2.575_{14}	0.3883_{21}	177
178	372.05_{46}	344.4	1195.4	851.0	767.1	83.9	0.5308	2.561_{13}	0.3904_{21}	178
179	372.51_{46}	344.9	1195.6	850.7	766.8	83.9	0.5313	2.548_{13}	0.3925_{20}	179
180	372.97_{46}	345.4	1195.7	850.3	766.4	83.9	0.5319	2.535_{13}	0.3945_{21}	180
181	373.43_{45}	345.9	1195.9	850.0	766.1	83.9	0.5325	2.522_{14}	0.3966_{21}	181
182	373.88_{45}	346.4	1196.0	849.6	765.6	84.0	0.5331	2.508_{13}	0.3987_{21}	182
183	374.33_{45}	346.8	1196.1	849.3	765.3	84.0	0.5336	2.495_{13}	0.4008_{21}	183
184	374.78_{45}	347.3	1196.2	848.9	764.9	84.0	0.5342	2.482_{12}	0.4029_{20}	184
185	375.23_{45}	347.8	1196.4	848.6	764.6	84.0	0.5347	2.470_{13}	0.4049_{21}	185
186	375.68_{44}	348.2	1196.5	848.3	764.3	84.0	0.5353	2.457_{12}	0.4070_{20}	186
187	376.12_{44}	348.7	1196.6	847.9	763.8	84.1	0.5359	2.445_{13}	0.4090_{21}	187
188	376.56_{44}	349.2	1196.8	847.6	763.5	84.1	0.5364	2.432_{12}	0.4111_{21}	188
189	377.00_{44}	349.6	1196.9	847.3	763.2	84.1	0.5370	2.420_{12}	0.4132_{21}	189
190	377.44_{44}	350.1	1197.1	847.0	762.9	84.1	0.5375	2.408_{12}	0.4153_{21}	190
191	377.88_{44}	350.5	1197.2	846.7	762.5	84.2	0.5381	2.396_{11}	0.4174_{20}	191
192	378.32_{43}	351.0	1197.3	846.3	762.1	84.2	0.5386	2.385_{12}	0.4194_{21}	192
193	378.75_{43}	351.4	1197.4	846.0	761.8	84.2	0.5391	2.373_{12}	0.4215_{21}	193

SATURATED STEAM—*Continued.*

Pressure, Pounds per Square Inch.	Temperature, Degrees Fahr.	Heat of the Liquid.	Total Heat.	Heat of Vaporization.	Heat equivalent of Internal Work.	Heat equivalent of External Work.	Entropy of the Liquid.	Specific Volume.	Density.	Pressure, Pounds per Square Inch.
p	t	q	λ	r	ρ	Apu	$\int\frac{cdt}{T}$	s	Weight, in Pounds, of one Cubic Foot. γ	p
194	379.18_{43}	351.9	1197.6	845.7	761.5	84.2	0.5397	2.361_{12}	0.4236_{21}	**194**
195	379.61_{43}	352.4	1197.7	845.3	761.1	84.2	0.5402	2.349_{12}	0.4257_{21}	**195**
196	380.04_{43}	352.8	1197.8	845.0	760.8	84.2	0.5408	2.337_{12}	0.4278_{20}	**196**
197	380.47_{42}	353.3	1198.0	844.7	760.4	84.3	0.5413	2.325_{11}	0.4298_{20}	**197**
198	380.89_{42}	353.7	1198.1	844.4	760.1	84.3	0.5418	2.314_{10}	0.4318_{20}	**198**
199	381.31_{42}	354.1	1198.2	844.1	759.8	84.3	0.5423	2.304_{10}	0.4338_{21}	**199**
200	381.73_{42}	354.6	1198.4	843.8	759.5	84.3	0.5429	2.294_{10}	0.4359_{20}	**200**
201	382.15_{42}	355.0	1198.5	843.5	759.1	84.4	0.5434	2.284_{10}	0.4379_{20}	**201**
202	382.57_{42}	355.4	1198.6	843.2	758.8	84.4	0.5439	2.274_{11}	0.4399_{21}	**202**
203	382.99_{42}	355.9	1198.8	842.9	758.5	84.4	0.5444	2.263_{11}	0.4420_{21}	**203**
204	383.41_{41}	356.3	1198.9	842.6	758.2	84.4	0.5449	2.252_{11}	0.4441_{20}	**204**
205	383.82_{41}	356.8	1199.0	842.2	757.8	84.4	0.5454	2.241_{10}	0.4461_{21}	**205**
206	384.23_{41}	357.2	1199.1	841.9	757.4	84.5	0.5459	2.231_{10}	0.4482_{21}	**206**
207	384.64_{41}	357.6	1199.3	841.7	757.2	84.5	0.5465	2.221_{10}	0.4503_{21}	**207**
208	385.05_{41}	358.0	1199.4	841.4	756.9	84.5	0.5470	2.211_{11}	0.4524_{20}	**208**
209	385.46_{41}	358.5	1199.5	841.0	756.5	84.5	0.5475	2.200_{10}	0.4544_{21}	**209**
210	385.87_{41}	358.9	1199.6	840.7	756.2	84.5	0.5480	2.190_{10}	0.4565_{21}	**210**
211	386.28_{40}	359.3	1199.8	840.5	756.0	84.5	0.5485	2.180_{9}	0.4586_{21}	**211**
212	386.68_{40}	359.7	1199.9	840.2	755.6	84.6	0.5489	2.171_{9}	0.4607_{20}	**212**
213	387.08_{40}	360.1	1200.0	839.9	755.3	84.6	0.5494	2.162_{10}	0.4627_{21}	**213**
214	387.48_{40}	360.6	1200.1	839.5	754.9	84.6	0.5499	2.152_{10}	0.4648_{21}	**214**
215	387.88_{40}	361.0	1200.2	839.2	754.6	84.6	0.5504	2.142_{10}	0.4669_{21}	**215**
216	388.28_{39}	361.4	1200.4	839.0	754.4	84.6	0.5509	2.132_{9}	0.4690_{21}	**216**
217	388.67_{39}	361.8	1200.5	838.7	754.1	84.6	0.5514	2.123_{9}	0.4711_{20}	**217**
218	389.06_{39}	362.2	1200.6	838.4	753.8	84.6	0.5519	2.114_{9}	0.4731_{20}	**218**
219	389.45_{39}	362.6	1200.7	838.1	753.4	84.7	0.5524	2.105_{9}	0.4751_{21}	**219**
220	389.84_{39}	363.0	1200.8	837.8	753.1	84.7	0.5529	2.096_{9}	0.4772_{20}	**220**
221	390.23_{39}	363.5	1201.0	837.5	752.8	84.7	0.5533	2.087_{9}	0.4792_{21}	**221**
222	390.62_{39}	363.9	1201.1	837.2	752.5	84.7	0.5538	2.078_{9}	0.4813_{21}	**222**
223	391.01_{39}	364.3	1201.2	836.9	752.2	84.7	0.5543	2.069_{9}	0.4834_{21}	**223**
224	391.40_{39}	364.7	1201.3	836.6	751.9	84.7	0.5548	2.060_{9}	0.4855_{21}	**224**
225	391.79_{38}	365.1	1201.4	836.3	751.6	84.7	0.5553	2.051_{9}	0.4876_{21}	**225**
226	392.17_{38}	365.5	1201.6	836.1	751.3	84.8	0.5557	2.042_{8}	0.4896_{21}	**226**
227	392.55_{38}	365.9	1201.7	835.8	751.0	84.8	0.5562	2.034_{8}	0.4917_{20}	**227**
228	392.93_{38}	366.3	1201.8	835.5	750.7	84.8	0.5567	2.026_{9}	0.4939_{20}	**228**
229	393.31_{38}	366.7	1201.9	835.2	750.4	84.8	0.5571	2.017_{8}	0.4959_{20}	**229**
230	393.69_{38}	367.1	1202.0	834.9	750.1	84.8	0.5576	2.009_{8}	0.4979_{21}	**230**
231	394.07_{38}	367.5	1202.1	834.6	749.8	84.8	0.5581	2.001_{9}	0.5000_{21}	**231**
232	394.45_{37}	367.9	1202.2	834.3	749.5	84.8	0.5585	1.992_{8}	0.5021_{20}	**232**
233	394.82_{37}	368.3	1202.4	834.1	749.2	84.9	0.5590	1.984_{8}	0.5041_{21}	**233**

SATURATED STEAM—*Continued.*

									Density.	
Pressure, Pounds per Square Inch. p	Temperature, Degrees Fahr. t	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int \frac{cdt}{T}$	Specific Volume. s	Weight, in Pounds, of one Cubic Foot. γ	Pressure, Pounds per Square Inch. p
234	395.19_{37}	368.6	1202.5	833.9	749.0	84.9	0.5594	1.976_{8}	0.5062_{20}	**234**
235	395.56_{37}	369.0	1202.6	833.6	748.7	84.9	0.5599	1.968_{8}	0.5082_{21}	**235**
236	395.93_{37}	369.4	1202.7	833.3	748.4	84.9	0.5603	1.960_{8}	0.5103_{20}	**236**
237	396.30_{37}	369.8	1202.8	833.0	748.1	84.9	0.5608	1.952_{8}	0.5123_{21}	**237**
238	396.67_{37}	370.2	1202.9	832.7	747.8	84.9	0.5612	1.944_{8}	0.5144_{21}	**238**
239	397.04_{37}	370.6	1203.0	832.4	747.5	84.9	0.5617	1.936_{8}	0.5165_{21}	**239**
240	397.41_{36}	371.0	1203.2	832.2	747.3	84.9	0.5621	1.928_{7}	0.5186_{20}	**240**
241	397.77_{36}	371.3	1203.3	832.0	747.0	85.0	0.5626	1.921_{8}	0.5206_{20}	**241**
242	398.13_{36}	371.7	1203.4	831.7	746.7	85.0	0.5630	1.913_{7}	0.5226_{21}	**242**
243	398.49_{36}	372.1	1203.5	831.4	746.4	85.0	0.5635	1.906_{8}	0.5247_{21}	**243**
244	398.85_{36}	372.5	1203.6	831.1	746.1	85.0	0.5639	1.898_{7}	0.5268_{21}	**244**
245	399.21_{36}	372.8	1203.7	830.9	745.9	85.0	0.5643	1.891_{8}	0.5289_{22}	**245**
246	399.57_{36}	373.2	1203.8	830.6	745.6	85.0	0.5648	1.883_{8}	0.5311_{21}	**246**
247	399.93_{36}	373.6	1203.9	830.3	745.3	85.0	0.5652	1.875_{7}	0.5332_{21}	**247**
248	400.29_{35}	374.0	1204.0	830.0	745.0	85.0	0.5656	1.868_{7}	0.5353_{20}	**248**
249	400.64_{35}	374.3	1204.1	829.8	744.8	85.0	0.5661	1.861_{7}	0.5373_{20}	**249**
250	400.99_{35}	374.7	1204.2	829.5	744.5	85.0	0.5665	1.854_{7}	0.5393_{20}	**250**
251	401.34_{35}	375.1	1204.4	829.3	744.2	85.1	0.5669	1.847_{7}	0.5413_{20}	**251**
252	401.69_{35}	375.4	1204.5	829.1	744.0	85.1	0.5673	1.840_{7}	0.5433_{21}	**252**
253	402.04_{35}	375.8	1204.6	828.8	743.7	85.1	0.5678	1.833_{7}	0.5454_{21}	**253**
254	402.39_{35}	376.2	1204.7	828.5	743.4	85.1	0.5682	1.826_{7}	0.5475_{21}	**254**
255	402.74_{35}	376.5	1204.8	828.3	743.2	85.1	0.5686	1.819_{7}	0.5496_{21}	**255**
256	403.09_{35}	376.9	1204.9	828.0	742.9	85.1	0.5690	1.812_{7}	0.5517_{21}	**256**
257	403.44_{35}	377.3	1205.0	827.7	742.6	85.1	0.5695	1.805_{7}	0.5538_{21}	**257**
258	403.79_{34}	377.6	1205.1	827.5	742.4	85.1	0.5699	1.798_{6}	0.5559_{21}	**258**
259	404.13_{34}	378.0	1205.2	827.2	742.1	85.1	0.5703	1.792_{7}	0.5580_{21}	**259**
260	404.47_{34}	378.4	1205.3	826.9	741.7	85.2	0.5707	1.785_{6}	0.5601_{20}	**260**
261	404.81_{34}	378.7	1205.4	826.7	741.5	85.2	0.5711	1.779_{6}	0.5621_{21}	**261**
262	405.15_{34}	379.1	1205.5	826.4	741.2	85.2	0.5715	1.773_{7}	0.5642_{21}	**262**
263	405.49_{34}	379.4	1205.6	826.2	741.0	85.2	0.5719	1.766_{7}	0.5663_{21}	**263**
264	405.83_{34}	379.8	1205.7	825.9	740.7	85.2	0.5724	1.759_{6}	0.5684_{21}	**264**
265	406.17_{34}	380.2	1205.8	825.6	740.4	85.2	0.5728	1.753_{7}	0.5705_{21}	**265**
266	406.51_{33}	380.5	1205.9	825.4	740.2	85.2	0.5732	1.746_{6}	0.5726_{20}	**266**
267	406.84_{34}	380.8	1206.0	825.2	740.0	85.2	0.5736	1.740_{6}	0.5746_{21}	**267**
268	407.18_{34}	381.2	1206.1	824.9	739.7	85.2	0.5740	1.734_{6}	0.5767_{21}	**268**
269	407.52_{33}	381.5	1206.2	824.7	739.5	85.2	0.5744	1.728_{6}	0.5788_{21}	**269**
270	407.85_{33}	381.9	1206.3	824.4	739.2	85.2	0.5748	1.722_{6}	0.5809_{20}	**270**
271	408.18_{33}	382.2	1206.4	824.2	739.0	85.2	0.5752	1.716_{7}	0.5829_{21}	**271**
272	408.51_{33}	382.6	1206.5	823.9	738.6	85.3	0.5756	1.709_{6}	0.5850_{21}	**272**
273	408.84_{33}	382.9	1206.6	823.7	738.4	85.3	0.5760	1.703_{6}	0.5871_{21}	**273**

SATURATED STEAM—*Continued.*

Pressure, Pounds per Square Inch. p	Temperature, Degrees Fahr. t	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	DENSITY. Weight, in Pounds, of one Cubic Foot. γ	Pressure, Pounds per Square Inch. p
274	409.17_{33}	383.3	1206.7	823.4	738.1	85.3	0.5764	1.697_{6}	0.5892_{21}	**274**
275	409.50_{33}	383.6	1206.8	823.2	737.9	85.3	0.5768	1.691_{6}	0.5913_{21}	**275**
276	409.83_{33}	384.0	1206.9	822.9	737.6	85.3	0.5772	1.685_{6}	0.5934_{21}	**276**
277	410.16_{32}	384.3	1207.0	822.7	737.4	85.3	0.5776	1.679_{6}	0.5955_{21}	**277**
278	410.48_{32}	384.6	1207.1	822.5	737.2	85.3	0.5779	1.673_{5}	0.5976_{21}	**278**
279	410.80_{32}	385.0	1207.2	822.2	736.9	85.3	0.5783	1.668_{6}	0.5997_{23}	**279**
280	411.12_{33}	385.3	1207.3	822.0	736.7	85.3	0.5787	1.662_{6}	0.602_{2}	**280**
281	411.44_{32}	385.6	1207.4	821.8	736.5	85.3	0.5791	1.656_{6}	0.604_{2}	**281**
282	411.76_{32}	386.0	1207.5	821.5	736.2	85.3	0.5795	1.650_{5}	0.606_{2}	**282**
283	412.08_{32}	386.3	1207.6	821.3	736.0	85.3	0.5799	1.645_{6}	0.608_{2}	**283**
284	412.40_{32}	386.6	1207.7	821.1	735.8	85.3	0.5803	1.639_{5}	0.610_{2}	**284**
285	412.72_{32}	387.0	1207.8	820.8	735.5	85.3	0.5806	1.634_{6}	0.612_{2}	**285**
286	413.04_{32}	387.3	1207.9	820.6	735.3	85.3	0.5810	1.628_{5}	0.614_{2}	**286**
287	413.36_{32}	387.7	1208.0	820.3	735.0	85.3	0.5814	1.623_{6}	0.616_{2}	**287**
288	413.68_{32}	388.0	1208.1	820.1	734.7	85.4	0.5818	1.617_{5}	0.618_{2}	**288**
289	414.00_{32}	388.3	1208.2	819.9	734.5	85.4	0.5822	1.612_{5}	0.620_{2}	**289**
290	414.32_{31}	388.6	1208.3	819.7	734.3	85.4	0.5826	1.607_{6}	0.622_{3}	**290**
291	414.63_{31}	389.0	1208.4	819.4	734.0	85.4	0.5829	1.601_{5}	0.625_{2}	**291**
292	414.94_{31}	389.3	1208.5	819.2	733.8	85.4	0.5833	1.596_{5}	0.627_{2}	**292**
293	415.25_{31}	389.6	1208.6	819.0	733.6	85.4	0.5837	1.591_{6}	0.629_{2}	**293**
294	415.56_{31}	390.0	1208.7	818.7	733.3	85.4	0.5840	1.585_{5}	0.631_{2}	**294**
295	415.87_{31}	390.3	1208.8	818.5	733.1	85.4	0.5844	1.580_{5}	0.633_{2}	**295**
296	416.18_{31}	390.6	1208.9	818.3	732.9	85.4	0.5848	1.575_{5}	0.635_{2}	**296**
297	416.49_{31}	390.9	1209.0	818.1	732.7	85.4	0.5851	1.570_{6}	0.637_{2}	**297**
298	416.80_{31}	391.3	1209.1	817.8	732.4	85.4	0.5855	1.564_{5}	0.639_{2}	**298**
299	417.11_{31}	391.6	1209.2	817.6	732.2	85.4	0.5859	1.559_{5}	0.641_{3}	**299**
300	417.42_{30}	391.9	1209.3	817.4	732.0	85.4	0.5863	1.554_{5}	0.644_{2}	**300**
301	417.72_{30}	392.2	1209.3	817.1	731.7	85.4	0.5866	1.549_{5}	0.646_{2}	**301**
302	418.02_{30}	392.5	1209.4	816.9	731.5	85.4	0.5870	1.544_{5}	0.648_{2}	**302**
303	418.32_{30}	392.8	1209.5	816.7	731.3	85.4	0.5873	1.539_{5}	0.650_{2}	**303**
304	418.62_{30}	393.2	1209.6	816.4	731.0	85.4	0.5877	1.534_{5}	0.652_{2}	**304**
305	418.92_{30}	393.5	1209.7	816.2	730.8	85.4	0.5880	1.529_{5}	0.654_{2}	**305**
306	419.22_{30}	393.8	1209.8	816.0	730.6	85.4	0.5884	1.524_{4}	0.656_{2}	**306**
307	419.52_{30}	394.1	1209.9	815.8	730.4	85.4	0.5888	1.520_{5}	0.658_{2}	**307**
308	419.82_{30}	394.4	1210.0	815.6	730.2	85.4	0.5891	1.515_{5}	0.660_{2}	**308**
309	420.12_{30}	394.7	1210.1	815.4	730.0	85.4	0.5895	1.510_{5}	0.662_{2}	**309**
310	420.42_{30}	395.0	1210.2	815.2	729.8	85.4	0.5898	1.505_{5}	0.664_{2}	**310**
311	420.72_{30}	395.4	1210.3	814.9	729.5	85.4	0.5902	1.500_{4}	0.666_{2}	**311**
312	421.02_{30}	395.7	1210.4	814.7	729.3	85.4	0.5905	1.496_{5}	0.668_{3}	**312**
313	421.32_{30}	396.0	1210.4	814.4	729.0	85.4	0.5909	1.491_{5}	0.671_{2}	**313**

SATURATED STEAM—*Continued.*

Pressure, Pounds per Square Inch. p	Temperature, Degrees Fahr. t	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	Density.	Pressure, Pounds per Square Inch. p
									Weight, in Pounds, of one Cubic Foot. γ	
314	421.62_{30}	396.3	1210.5	814.2	728.7	85.5	0.5913	1.486_{5}	0.673_{2}	**314**
315	421.92_{29}	396.6	1210.6	814.0	728.5	85.5	0.5916	1.481_{4}	0.675_{2}	**315**
316	422.21_{29}	396.9	1210.7	813.8	728.3	85.5	0.5919	1.477_{5}	0.677_{2}	**316**
317	422.50_{29}	397.2	1210.8	813.6	728.1	85.5	0.5923	1.472_{4}	0.679_{2}	**317**
318	422.79_{29}	397.5	1210.9	813.4	727.9	85.5	0.5926	1.468_{4}	0.681_{2}	**318**
319	423.08_{29}	397.8	1211.0	813.2	727.7	85.5	0.5930	1.464_{5}	0.683_{2}	**319**
320	423.37_{29}	398.1	1211.1	813.0	727.5	85.5	0.5933	1.459_{5}	0.685_{3}	**320**
321	423.66_{29}	398.4	1211.2	812.8	727.3	85.5	0.5937	1.454_{4}	0.688_{2}	**321**
322	423.95_{29}	398.7	1211.2	812.5	727.0	85.5	0.5940	1.450_{5}	0.690_{2}	**322**
323	424.24_{29}	399.0	1211.3	812.3	726.8	85.5	0.5944	1.445_{4}	0.692_{2}	**323**
324	424.53_{29}	399.3	1211.4	812.1	726.6	85.5	0.5947	1.441_{4}	0.694_{2}	**324**
325	424.82_{28}	399.6	1211.5	811.9	726.4	85.5	0.5950	1.437_{5}	0.696_{2}	**325**
326	425.10_{28}	399.9	1211.6	811.7	726.2	85.5	0.5954	1.432_{4}	0.698_{2}	**326**
327	425.38_{29}	400.2	1211.7	811.5	726.0	85.5	0.5957	1.428_{4}	0.700_{2}	**327**
328	425.67_{29}	400.5	1211.8	811.3	725.8	85.5	0.5960	1.424_{4}	0.702_{2}	**328**
329	425.96_{28}	400.8	1211.9	811.1	725.6	85.5	0.5964	1.420_{5}	0.704_{3}	**329**
330	426.24_{28}	401.1	1211.9	810.8	725.3	85.5	0.5967	1.415_{4}	0.707_{2}	**330**
331	426.52_{28}	401.4	1212.0	810.6	725.1	85.5	0.5970	1.411_{4}	0.709_{2}	**331**
332	426.80_{28}	401.7	1212.1	810.4	724.9	85.5	0.5974	1.407_{4}	0.711_{2}	**332**
333	427.08_{28}	402.0	1212.2	810.2	724.7	85.5	0.5977	1.403_{4}	0.713_{2}	**333**
334	427.36_{28}	402.3	1212.3	810.0	724.5	85.5	0.5980	1.399_{4}	0.715_{2}	**334**
335	427.64_{28}	402.6	1212.4	809.8	724.3	85.5	0.5984	1.395_{4}	0.717_{2}	**335**
336	427.92	402.9	1212.5	809.6	724.1	85.5	0.5987	1.391	0.719	**336**

TABLE III.

SATURATED STEAM.

FRENCH UNITS.

Temperature, Degrees Centigrade. t	Pressure, Millimeters of Mercury. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int \frac{cdt}{T}$	Specific Volume. s	Density. Weight, in Kilos, of one Cubic Meter. γ	Temperature, Degrees Centigrade. t
0	4.602_{339}	0.000	606.5	606.5	575.5	31.0	0.00000	211.5_{138}	0.004730_{327}	**0**
1	4.941_{362}	1.007	606.8	605.8	574.7	31.1	0.00367	197.7_{131}	0.005057_{360}	**1**
2	5.303_{386}	2.014	607.1	605.1	573.9	31.2	0.00733	184.6_{122}	0.005417_{383}	**2**
3	5.689_{411}	3.022	607.4	604.4	573.2	31.2	0.01098	172.4_{112}	0.005800_{403}	**3**
4	6.100_{436}	4.029	607.7	603.7	572.4	31.3	0.01461	161.2_{104}	0.006203_{427}	**4**
5	6.536_{465}	5.036	608.0	603.0	571.6	31.4	0.01823	150.8_{96}	0.006630_{450}	**5**
6	7.001_{493}	6.040	608.3	602.3	570.8	31.5	0.02183	141.2_{90}	0.007080_{481}	**6**
7	7.494_{525}	7.045	608.6	601.6	570.0	31.6	0.02542	132.2_{83}	0.007561_{508}	**7**
8	8.019_{557}	8.049	608.9	600.9	569.3	31.6	0.02899	123.9_{77}	0.008069_{529}	**8**
9	8.576_{591}	9.054	609.2	600.1	568.4	31.7	0.03255	116.2_{72}	0.008608_{569}	**9**
10	9.167_{628}	10.058	609.6	599.5	567.7	31.8	0.03609	109.0_{67}	0.009177_{602}	**10**
11	9.795_{665}	11.060	609.9	598.8	566.9	31.9	0.03962	102.3_{62}	0.009779_{631}	**11**
12	10.460_{704}	12.061	610.2	598.1	566.1	32.0	0.04313	96.09_{590}	0.01041_{67}	**12**
13	11.164_{747}	13.063	610.5	597.4	565.3	32.1	0.04663	90.19_{543}	0.01108_{71}	**13**
14	11.911_{791}	14.064	610.8	596.7	564.5	32.2	0.05012	84.76_{507}	0.01179_{76}	**14**
15	12.702_{837}	15.066	611.1	596.0	563.8	32.2	0.05359	79.69_{472}	0.01255_{79}	**15**
16	13.539_{884}	16.066	611.4	595.3	563.0	32.3	0.05705	74.97_{441}	0.01334_{83}	**16**
17	14.423_{937}	17.066	611.7	594.6	562.2	32.4	0.06050	70.56_{412}	0.01417_{88}	**17**
18	15.360_{989}	18.066	612.0	593.9	561.4	32.5	0.06330	66.44_{386}	0.01505_{93}	**18**
19	16.349_{1046}	19.066	612.3	593.2	560.6	32.6	0.06735	62.58_{360}	0.01598_{97}	**19**
20	17.395_{1103}	20.066	612.6	592.5	559.8	32.7	0.07076	58.98_{337}	0.01695_{103}	**20**
21	18.498_{1165}	21.064	612.9	591.8	559.0	32.8	0.07415	55.61_{315}	0.01798_{108}	**21**
22	19.663_{1229}	22.063	613.2	591.1	558.2	32.9	0.07754	52.46_{295}	0.01906_{114}	**22**
23	20.892_{1296}	23.061	613.5	590.4	557.5	32.9	0.08091	49.51_{277}	0.02020_{119}	**23**
24	22.188_{1366}	24.059	613.8	589.7	556.7	33.0	0.08427	46.74_{259}	0.02139_{126}	**24**
25	23.554_{1440}	25.058	614.1	589.0	555.9	33.1	0.08762	44.15_{243}	0.02265_{132}	**25**
26	24.994_{1516}	26.053	614.4	588.3	555.1	33.2	0.09094	41.72_{227}	0.02397_{138}	**26**
27	26.510_{1597}	27.048	614.7	587.7	554.4	33.3	0.09426	39.45_{214}	0.02535_{145}	**27**
28	28.107_{1679}	28.042	615.0	587.0	553.6	33.4	0.09756	37.31_{201}	0.02680_{153}	**28**
29	29.786_{1767}	29.037	615.3	586.3	552.8	33.5	0.10085	35.30_{188}	0.02833_{159}	**29**
30	31.553_{1858}	30.032	615.7	585.7	552.1	33.6	0.10413	33.42_{177}	0.02992_{168}	**30**

SATURATED STEAM—*Continued.*

Temperature, Degrees Centigrade. t	Pressure, Millimeters of Mercury. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	Density. Weight, in Kilos, of one Cubic Meter. γ	Temperature, Degrees Centigrade. t
31	33.411_{1953}	31.027	616.0	585.0	551.3	33.7	0.10740	31.65_{167}	0.03160_{175}	**31**
32	35.364_{2052}	32.023	616.3	584.3	550.5	33.8	0.11067	29.98_{156}	0.03335_{184}	**32**
33	37.416_{2155}	33.018	616.6	583.6	549.7	33.9	0.11392	28.42_{148}	0.03519_{193}	**33**
34	39.571_{2262}	34.014	616.9	582.9	548.9	34.0	0.11716	26.94_{138}	0.03712_{201}	**34**
35	41.833_{2374}	35.009	617.2	582.2	548.2	34.0	0.12039	25.56_{131}	0.03913_{211}	**35**
36	44.207_{2490}	36.007	617.5	581.5	547.4	34.1	0.12362	24.25_{123}	0.04124_{220}	**36**
37	46.697_{2611}	37.005	617.8	580.8	546.6	34.2	0.12683	23.02_{116}	0.04344_{230}	**37**
38	49.308_{2742}	38.004	618.1	580.1	545.8	34.3	0.13004	21.86_{109}	0.04574_{241}	**38**
39	52.05_{286}	39.002	618.4	579.4	545.0	34.4	0.13324	20.77_{103}	0.04815_{251}	**39**
40	54.91_{301}	40.0	618.7	578.7	544.2	34.5	0.1364	19.74_{98}	0.05066_{263}	**40**
41	57.92_{314}	41.0	619.0	578.0	543.4	34.6	0.1396	18.76_{92}	0.05329_{275}	**41**
42	61.06_{329}	42.0	619.3	577.3	542.6	34.7	0.1428	17.84_{86}	0.05604_{285}	**42**
43	64.35_{345}	43.0	619.6	576.6	541.8	34.8	0.1459	16.98_{82}	0.05889_{298}	**43**
44	67.80_{360}	44.0	619.9	575.9	541.0	34.9	0.1491	16.16_{77}	0.06187_{310}	**44**
45	71.40_{376}	45.0	620.2	575.2	540.2	35.0	0.1522	15.39_{73}	0.06497_{325}	**45**
46	75.16_{394}	46.0	620.5	574.5	539.4	35.1	0.1554	14.66_{69}	0.06822_{338}	**46**
47	79.10_{411}	47.0	620.8	573.8	538.6	35.2	0.1585	13.97_{66}	0.07160_{352}	**47**
48	83.21_{430}	48.0	621.1	573.1	537.8	35.3	0.1617	13.31_{62}	0.07512_{366}	**48**
49	87.51_{447}	49.0	621.4	572.4	537.0	35.4	0.1648	12.69_{58}	0.07878_{381}	**49**
50	91.98_{467}	50.0	621.8	571.8	536.3	35.5	0.1679	12.11_{55}	0.08259_{394}	**50**
51	96.65_{489}	51.0	622.1	571.1	535.5	35.6	0.1710	11.56_{53}	0.08653_{416}	**51**
52	101.54_{510}	52.1	622.4	570.3	534.6	35.7	0.1741	11.03_{50}	0.09069_{428}	**52**
53	106.64_{531}	53.1	622.7	569.6	533.8	35.8	0.1772	10.53_{47}	0.09497_{443}	**53**
54	111.95_{554}	54.1	623.0	568.9	533.0	35.9	0.1803	10.06_{45}	0.09940_{470}	**54**
55	117.49_{576}	55.1	623.3	568.2	532.2	36.0	0.1833	9.610_{425}	0.1041_{48}	**55**
56	123.25_{601}	56.1	623.6	567.5	531.4	36.1	0.1864	9.185_{403}	0.1089_{50}	**56**
57	129.26_{625}	57.1	623.9	566.8	530.7	36.1	0.1895	8.782_{383}	0.1139_{52}	**57**
58	135.51_{651}	58.1	624.2	566.1	529.9	36.2	0.1925	8.399_{363}	0.1191_{54}	**58**
59	142.02_{678}	59.1	624.5	565.4	529.1	36.3	0.1956	8.036_{349}	0.1245_{56}	**59**
60	148.80_{705}	60.1	624.8	564.7	528.3	36.4	0.1986	7.687_{325}	0.1301_{57}	**60**
61	155.85_{733}	61.1	625.1	564.0	527.5	36.5	0.2016	7.362_{311}	0.1358_{60}	**61**
62	163.18_{762}	62.1	625.4	563.3	526.7	36.6	0.2046	7.051_{297}	0.1418_{63}	**62**
63	170.80_{792}	63.1	625.7	562.6	525.9	36.7	0.2076	6.754_{284}	0.1481_{65}	**63**
64	178.72_{823}	64.2	626.0	561.8	525.0	36.8	0.2106	6.470_{269}	0.1546_{67}	**64**
65	186.95_{855}	65.2	626.3	561.1	524.2	36.9	0.2136	6.201_{254}	0.1613_{69}	**65**
66	195.50_{888}	66.2	626.6	560.4	523.4	37.0	0.2166	5.947_{242}	0.1682_{71}	**66**
67	204.38_{922}	67.2	626.9	559.7	522.6	37.1	0.2196	5.705_{233}	0.1753_{74}	**67**
68	213.60_{957}	68.2	627.2	559.0	521.8	37.2	0.2225	5.472_{222}	0.1827_{78}	**68**
69	223.17_{992}	69.2	627.5	558.3	521.0	37.3	0.2254	5.250_{210}	0.1905_{80}	**69**
70	233.09_{1030}	70.2	627.9	557.7	520.3	37.4	0.2284	5.040_{201}	0.1985_{82}	**70**

SATURATED STEAM — *Continued.*

Temperature, Degrees Centigrade. t	Pressure, Millimeters of Mercury. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int \frac{cdt}{T}$	Specific Volume. s	DENSITY. Weight, in Kilos, of one Cubic Meter. γ	Temperature, Degrees Centigrade. t
71	243.39 1068	71.2	628.2	557.0	519.5	37.5	0.2313	4.839 191	0.2067 84	**71**
72	254.07 1107	72.2	628.5	556.3	518.7	37.6	0.2342	4.648 183	0.2151 88	**72**
73	265.14 1148	73.2	628.8	555.6	517.9	37.7	0.2371	4.465 174	0.2239 91	**73**
74	276.62 1189	74.2	629.1	554.9	517.1	37.8	0.2400	4.291 167	0.2330 95	**74**
75	288.51 1232	75.2	629.4	554.2	516.3	37.9	0.2429	4.124 159	0.2425 97	**75**
76	300.83 1276	76.2	629.7	553.5	515.5	38.0	0.2458	3.965 152	0.2522 101	**76**
77	313.59 1321	77.3	630.0	552.7	514.6	38.1	0.2487	3.813 145	0.2623 103	**77**
78	326.80 1368	78.3	630.3	552.0	513.8	38.2	0.2516	3.668 139	0.2726 107	**78**
79	340.48 1415	79.3	630.6	551.3	513.0	38.3	0.2544	3.529 132	0.2833 111	**79**
80	354.63 1464	80.3	630.9	550.6	512.3	38.3	0.2573	3.397 127	0.2944 114	**80**
81	369.27 1514	81.3	631.2	549.9	511.5	38.4	0.2601	3.270 121	0.3058 118	**81**
82	384.41 1567	82.3	631.5	549.2	510.7	38.5	0.2630	3.149 116	0.3176 122	**82**
83	400.08 1619	83.3	631.8	548.5	509.9	38.6	0.2658	3.033 111	0.3298 125	**83**
84	416.27 1674	84.3	632.1	547.8	509.1	38.7	0.2686	2.922 107	0.3423 129	**84**
85	433.01 1730	85.3	632.4	547.1	508.3	38.8	0.2714	2.815 101	0.3552 133	**85**
86	450.31 1787	86.3	632.7	546.4	507.5	38.9	0.2742	2.714 98	0.3685 137	**86**
87	468.18 1846	87.3	633.0	545.7	506.7	39.0	0.2770	2.616 93	0.3822 143	**87**
88	486.64 1907	88.3	633.3	545.0	505.9	39.1	0.2798	2.523 90	0.3965 146	**88**
89	505.71 1969	89.4	633.6	544.2	505.0	39.2	0.2826	2.433 86	0.4111 149	**89**
90	525.40 2032	90.4	634.0	543.6	504.3	39.3	0.2854	2.347 82	0.4260 155	**90**
91	545.72 2098	91.4	634.3	542.9	503.6	39.3	0.2881	2.265 79	0.4415 160	**91**
92	566.70 2164	92.4	634.6	542.2	502.8	39.4	0.2909	2.186 76	0.4575 164	**92**
93	588.34 2233	93.4	634.9	541.5	502.0	39.5	0.2937	2.110 72	0.4739 169	**93**
94	610.67 2303	94.4	635.2	540.8	501.2	39.6	0.2964	2.038 70	0.4908 173	**94**
95	633.70 2375	95.4	635.5	540.1	500.4	39.7	0.2991	1.968 67	0.5081 180	**95**
96	657.45 2448	96.4	635.8	539.4	499.6	39.8	0.3019	1.901 65	0.5261 184	**96**
97	681.93 2524	97.4	636.1	538.7	498.8	39.9	0.3046	1.836 62	0.5445 191	**97**
98	707.17 2602	98.4	636.4	538.0	498.1	39.9	0.3073	1.774 59	0.5636 195	**98**
99	733.19 2681	99.4	636.7	537.3	497.3	40.0	0.3100	1.715 54	0.5831 191	**99**
100	760.00 275	100.4	637.0	536.6	496.4	40.2	0.3127	1.661 52	0.6024 195	**100**
101	787.5 283	101.4	637.3	535.9	495.6	40.3	0.3154	1.609 53	0.6219 208	**101**
102	815.8 292	102.5	637.6	535.1	494.7	40.4	0.3181	1.556 51	0.6427 218	**102**
103	845.0 301	103.5	637.9	534.4	493.9	40.5	0.3208	1.505 49	0.6645 223	**103**
104	875.1 309	104.5	638.2	533.7	493.2	40.5	0.3235	1.456 47	0.6868 229	**104**
105	906.0 319	105.5	638.5	533.0	492.4	40.6	0.3261	1.409 47	0.7097 236	**105**
106	937.9 328	106.5	638.8	532.3	491.6	40.7	0.3288	1.365 45	0.7333 243	**106**
107	970.7 337	107.5	639.1	531.6	490.8	40.8	0.3314	1.320 42	0.7576 249	**107**
108	1004.4 347	108.5	639.4	530.9	490.1	40.8	0.3341	1.278 40	0.7825 255	**108**
109	1039.1 356	109.5	639.7	530.2	489.3	40.9	0.3367	1.248 39	0.8080 260	**109**
110	1074.7 367	110.5	640.1	529.6	488.6	41.0	0.3393	1.209 37	0.8340 268	**110**

SATURATED STEAM—*Continued.*

Temperature, Degrees Centigrade. t	Pressure, Millimeters of Mercury. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	Density. Weight, in Kilos, of one Cubic Meter. γ	Temperature, Degrees Centigrade. t
111	1111.4_{377}	111.5	640.4	528.9	487.8	41.1	0.3420	1.162_{36}	0.8608_{275}	**111**
112	1149.1_{388}	112.5	640.7	528.2	487.0	41.2	0.3446	1.126_{35}	0.8883_{283}	**112**
113	1187.9_{398}	113.5	641.0	527.5	486.3	41.2	0.3471	1.091_{34}	0.9166_{290}	**113**
114	1227.7_{410}	114.6	641.3	526.7	485.4	41.3	0.3498	1.057_{32}	0.9456_{299}	**114**
115	1268.7_{420}	115.6	641.6	526.0	484.6	41.4	0.3524	1.025_{31}	0.9755_{305}	**115**
116	1310.7_{432}	116.6	641.9	525.3	483.8	41.5	0.3550	0.9942_{299}	1.006_{31}	**116**
117	1353.9_{444}	117.6	642.2	524.6	483.1	41.5	0.3576	0.9643_{289}	1.037_{32}	**117**
118	1398.3_{455}	118.6	642.5	523.9	482.3	41.6	0.3601	0.9354_{278}	1.069_{33}	**118**
119	1443.8_{467}	119.6	642.8	523.2	481.5	41.7	0.3627	0.9076_{268}	1.102_{33}	**119**
120	1490.5_{480}	120.6	643.1	522.5	480.7	41.8	0.3653	0.8808_{258}	1.135_{35}	**120**
121	1538.5_{492}	121.6	643.4	521.8	480.0	41.8	0.3678	0.8550_{250}	1.170_{35}	**121**
122	1587.7_{506}	122.6	643.7	521.1	479.2	41.9	0.3704	0.8300_{241}	1.205_{36}	**122**
123	1638.3_{518}	123.6	644.0	520.4	478.4	42.0	0.3729	0.8059_{233}	1.241_{37}	**123**
124	1690.1_{532}	124.6	644.3	519.7	477.6	42.1	0.3755	0.7826_{224}	1.278_{37}	**124**
125	1743.3_{545}	125.6	644.6	519.0	476.8	42.2	0.3780	0.7602_{216}	1.315_{39}	**125**
126	1797.8_{559}	126.6	644.9	518.3	476.1	42.2	0.3805	0.7386_{211}	1.354_{40}	**126**
127	1853.7_{573}	127.7	645.2	517.5	475.2	42.3	0.3830	0.7175_{203}	1.394_{40}	**127**
128	1911.0_{587}	128.7	645.5	516.8	474.4	42.4	0.3856	0.6973_{195}	1.434_{41}	**128**
129	1969.7_{601}	129.7	645.8	516.1	473.6	42.5	0.3881	0.6778_{187}	1.475_{42}	**129**
130	2029.8_{617}	130.7	646.2	515.5	473.0	42.5	0.3906	0.6591_{183}	1.517_{43}	**130**
131	2091.5_{633}	131.7	646.5	514.8	472.2	42.6	0.3931	0.6408_{177}	1.560_{45}	**131**
132	2154.8_{647}	132.7	646.8	514.1	471.4	42.7	0.3955	0.6231_{170}	1.605_{45}	**132**
133	2219.5_{663}	133.7	647.1	513.4	470.6	42.8	0.3980	0.6061_{165}	1.650_{46}	**133**
134	2285.8_{679}	134.7	647.4	512.7	469.8	42.9	0.4005	0.5896_{160}	1.696_{47}	**134**
135	2353.7_{695}	135.7	647.7	512.0	469.1	42.9	0.4030	0.5736_{153}	1.743_{48}	**135**
136	2423.2_{712}	136.7	648.0	511.3	468.3	43.0	0.4054	0.5583_{149}	1.791_{49}	**136**
137	2494.4_{728}	137.7	648.3	510.6	467.5	43.1	0.4079	0.5434_{145}	1.840_{51}	**137**
138	2567.2_{745}	138.7	648.6	509.9	466.7	43.2	0.4103	0.5289_{140}	1.891_{51}	**138**
139	2641.7_{762}	139.8	648.9	509.1	465.9	43.2	0.4128	0.5149_{136}	1.942_{53}	**139**
140	2717.9_{780}	140.8	649.2	508.4	465.1	43.3	0.4152	0.5013_{130}	1.995_{53}	**140**
141	2795.9_{798}	141.8	649.5	507.7	464.3	43.4	0.4177	0.4883_{127}	2.048_{55}	**141**
142	2875.7_{816}	142.8	649.8	507.0	463.5	43.5	0.4201	0.4756_{123}	2.103_{55}	**142**
143	2957.3_{835}	143.8	650.1	506.3	462.8	43.5	0.4225	0.4633_{119}	2.158_{57}	**143**
144	3040.8_{853}	144.8	650.4	505.6	462.0	43.6	0.4249	0.4514_{115}	2.215_{58}	**144**
145	3126.1_{872}	145.8	650.7	504.9	461.2	43.7	0.4273	0.4399_{112}	2.273_{59}	**145**
146	3213.3_{892}	146.8	651.0	504.2	460.4	43.8	0.4297	0.4287_{108}	2.332_{60}	**146**
147	3302.5_{911}	147.8	651.3	503.5	459.6	43.9	0.4321	0.4179_{105}	2.392_{62}	**147**
148	3393.6_{931}	148.8	651.6	502.8	458.9	43.9	0.4345	0.4074_{101}	2.454_{63}	**148**
149	3486.7_{952}	149.8	651.9	502.1	458.1	44.0	0.4369	0.3973_{98}	2.517_{64}	**149**
150	3581.9_{972}	150.8	652.3	501.5	457.4	44.1	0.4393	0.3875_{96}	2.581_{65}	**150**

SATURATED STEAM—*Continued.*

Temperature, Degrees Centigrade.	Pressure, Millimeters of Mercury.	Heat of the Liquid.	Total Heat.	Heat of Vaporization.	Heat equivalent of Internal Work.	Heat equivalent of External Work.	Entropy of the Liquid.	Specific Volume.	Density.	Temperature, Degrees Centigrade.
									Weight, in Kilos, of one Cubic Meter.	
t	p	q	λ	r	ρ	Apu	$\int\frac{cdt}{T}$	s	γ	t
151	3679.1$_{993}$	151.8	652.6	500.8	456.6	44.2	0.4417	0.3779$_{93}$	2.646$_{67}$	**151**
152	3778.4$_{1014}$	152.9	652.9	500.0	455.8	44.2	0.4440	0.3686$_{90}$	2.713$_{68}$	**152**
153	3879.8$_{1035}$	153.9	653.2	499.3	455.0	44.3	0.4464	0.3596$_{87}$	2.781$_{69}$	**153**
154	3983.3$_{1057}$	154.9	653.5	498.6	454.2	44.4	0.4488	0.3509$_{85}$	2.850$_{70}$	**154**
155	4089.0$_{1079}$	155.9	653.8	497.9	453.4	44.5	0.4511	0.3424$_{82}$	2.920$_{72}$	**155**
156	4196.9$_{1102}$	156.9	654.1	497.2	452.7	44.5	0.4536	0.3342$_{80}$	2.992$_{74}$	**156**
157	4307.1$_{1124}$	158.0	654.4	496.4	451.8	44.6	0.4560	0.3262$_{78}$	3.066$_{75}$	**157**
158	4419.5$_{1148}$	159.0	654.7	495.7	450.0	44.7	0.4584	0.3184$_{76}$	3.141$_{76}$	**158**
159	4534.3$_{1171}$	160.1	655.0	494.9	449.2	44.7	0.4608	0.3108$_{73}$	3.217$_{78}$	**159**
160	4651.4$_{1195}$	161.1	655.3	494.2	449.4	44.8	0.4633	0.3035$_{71}$	3.295$_{79}$	**160**
161	4770.9$_{1218}$	162.2	655.6	493.4	448.5	44.9	0.4657	0.2964$_{69}$	3.374$_{80}$	**161**
162	4892.7$_{1243}$	163.2	655.9	492.7	447.7	45.0	0.4681	0.2895$_{67}$	3.454$_{82}$	**162**
163	5017.$_{127}$	164.2	656.2	492.0	447.0	45.0	0.4705	0.2828$_{66}$	3.536$_{84}$	**163**
164	5144.$_{129}$	165.3	656.5	491.2	446.1	45.1	0.4729	0.2762$_{63}$	3.620$_{85}$	**164**
165	5273.$_{132}$	166.3	656.8	490.5	445.3	45.2	0.4752	0.2699$_{62}$	3.705$_{87}$	**165**
166	5405.$_{134}$	167.4	657.1	489.7	444.5	45.2	0.4776	0.2637$_{60}$	3.792$_{88}$	**166**
167	5539.$_{137}$	168.4	657.4	489.0	443.7	45.3	0.4800	0.2577$_{58}$	3.880$_{90}$	**167**
168	5676.$_{140}$	169.5	657.7	488.2	442.9	45.3	0.4824	0.2519$_{57}$	3.970$_{91}$	**168**
169	5816.$_{143}$	170.5	658.0	487.5	442.1	45.4	0.4847	0.2462$_{55}$	4.061$_{93}$	**169**
170	5959.$_{145}$	171.6	658.4	486.8	441.3	45.5	0.4871	0.2407$_{53}$	4.154$_{94}$	**170**
171	6104.$_{147}$	172.6	658.7	486.1	440.5	45.6	0.4895	0.2354$_{52}$	4.248$_{97}$	**171**
172	6251.$_{151}$	173.7	659.0	485.3	439.7	45.6	0.4918	0.2302$_{51}$	4.345$_{99}$	**172**
173	6402.$_{153}$	174.7	659.3	484.6	438.9	45.7	0.4941	0.2251$_{50}$	4.444$_{99}$	**173**
174	6555.$_{157}$	175.8	659.6	483.8	438.1	45.7	0.4965	0.2201$_{48}$	4.543$_{101}$	**174**
175	6712.$_{159}$	176.8	659.9	483.1	437.3	45.8	0.4988	0.2153$_{47}$	4.644$_{103}$	**175**
176	6871.$_{162}$	177.8	660.2	482.4	436.5	45.9	0.5011	0.2106$_{45}$	4.747$_{105}$	**176**
177	7033.$_{165}$	178.9	660.5	481.6	435.7	45.9	0.5035	0.2061$_{44}$	4.852$_{107}$	**177**
178	7198.$_{168}$	179.9	660.8	480.9	434.9	46.0	0.5058	0.2017$_{44}$	4.959$_{109}$	**178**
179	7366.$_{171}$	181.0	661.1	480.1	434.0	46.1	0.5081	0.1973$_{42}$	5.068$_{110}$	**179**
180	7537.$_{175}$	182.0	661.4	479.4	433.3	46.1	0.5104	0.1931$_{41}$	5.178$_{113}$	**180**
181	7712.$_{177}$	183.1	661.7	478.6	432.4	46.2	0.5127	0.1890$_{40}$	5.291$_{114}$	**181**
182	7889.$_{181}$	184.1	662.0	477.9	431.7	46.2	0.5150	0.1850$_{39}$	5.405$_{117}$	**182**
183	8070.$_{183}$	185.2	662.3	477.1	430.8	46.3	0.5173	0.1811$_{38}$	5.522$_{118}$	**183**
184	8253.$_{187}$	186.2	662.6	476.4	430.1	46.3	0.5196	0.1773$_{37}$	5.640$_{120}$	**184**
185	8440.$_{191}$	187.3	662.9	475.6	429.2	46.4	0.5219	0.1736$_{36}$	5.760$_{122}$	**185**
186	8631.$_{193}$	188.3	663.2	474.9	428.5	46.4	0.5242	0.1700$_{36}$	5.882$_{125}$	**186**
187	8824.$_{197}$	189.4	663.5	474.1	427.6	46.5	0.5264	0.1664$_{34}$	6.007$_{127}$	**187**
188	9021.$_{201}$	190.4	663.8	473.4	426.9	46.5	0.5287	0.1630$_{33}$	6.134$_{128}$	**188**
189	9222.$_{204}$	191.4	664.1	472.7	426.1	46.6	0.5310	0.1597$_{33}$	6.262$_{130}$	**189**
190	9426.$_{207}$	192.5	664.5	472.0	425.3	46.7	0.5332	0.1564$_{32}$	6.392$_{133}$	**190**

SATURATED STEAM—*Concluded.*

Temperature, Degrees Centigrade. t	Pressure, Millimeters of Mercury. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int \frac{c\,dt}{T}$	Specific Volume. s	Density. Weight, in Kilos, of one Cubic Meter. γ	Temperature, Degrees Centigrade. t
191	9633.$_{211}$	193.5	664.8	471.3	424.6	46.7	0.5355	0.1532$_{31}$	6.525$_{136}$	**191**
192	9844.$_{214}$	194.6	665.1	470.5	423.7	46.8	0.5377	0.1501$_{30}$	6.661$_{137}$	**192**
193	10058.$_{218}$	195.6	665.4	469.8	423.0	46.8	0.5400	0.1471$_{30}$	6.798$_{140}$	**193**
194	10276.$_{222}$	196.7	665.7	469.0	422.2	46.8	0.5422	0.1441$_{29}$	6.938$_{142}$	**194**
195	10498.$_{226}$	197.7	666.0	468.3	421.4	46.9	0.5444	0.1412$_{28}$	7.080$_{145}$	**195**
196	10724.$_{229}$	198.8	666.3	467.5	420.6	46.9	0.5467	0.1384$_{27}$	7.225$_{147}$	**196**
197	10953.$_{233}$	199.8	666.6	466.8	419.8	47.0	0.5489	0.1357$_{27}$	7.372$_{149}$	**197**
198	11186.$_{238}$	200.9	666.9	466.0	419.0	47.0	0.5511	0.1330$_{27}$	7.521$_{151}$	**198**
199	11424.$_{240}$	201.9	667.2	465.3	418.2	47.1	0.5533	0.1303$_{26}$	7.672$_{155}$	**199**
200	11664.$_{245}$	203.0	667.5	464.5	417.4	47.1	0.5555	0.1277$_{25}$	7.827$_{157}$	**200**
201	11909.$_{249}$	204.0	667.8	463.8	416.7	47.1	0.5577	0.1252$_{24}$	7.984$_{159}$	**201**
202	12158.$_{253}$	205.0	668.1	463.1	415.9	47.2	0.5599	0.1228$_{24}$	8.143$_{162}$	**202**
203	12411.$_{257}$	206.1	668.4	462.3	415.1	47.2	0.5621	0.1204$_{23}$	8.305$_{165}$	**203**
204	12668.$_{262}$	207.1	668.7	461.6	414.4	47.2	0.5643	0.1181$_{23}$	8.470$_{169}$	**204**
205	12930.$_{265}$	208.2	669.0	460.8	413.5	47.3	0.5665	0.1158$_{23}$	8.639$_{171}$	**205**
206	13195.$_{270}$	209.2	669.3	460.1	412.8	47.3	0.5687	0.1135$_{22}$	8.810$_{174}$	**206**
207	13465.$_{274}$	210.3	669.6	459.3	412.0	47.3	0.5709	0.1113$_{21}$	8.984$_{176}$	**207**
208	13739.$_{279}$	211.3	669.9	458.6	411.3	47.3	0.5731	0.1092$_{21}$	9.160$_{178}$	**208**
209	14018.$_{283}$	212.4	670.2	457.8	410.4	47.4	0.5752	0.1071$_{21}$	9.338$_{181}$	**209**
210	14301.$_{287}$	213.4	670.6	457.2	409.8	47.4	0.5774	0.1050$_{20}$	9.519$_{185}$	**210**
211	14588.$_{292}$	214.5	670.9	456.4	409.0	47.4	0.5795	0.1030$_{19}$	9.704$_{190}$	**211**
212	14880.$_{297}$	215.5	671.2	455.7	408.3	47.4	0.5817	0.1011$_{19}$	9.894$_{186}$	**212**
213	15177.$_{301}$	216.5	671.5	455.0	407.6	47.4	0.5839	0.0992$_{19}$	10.08$_{20}$	**213**
214	15478.$_{307}$	217.6	671.8	454.2	406.7	47.5	0.5860	0.0973$_{19}$	10.28$_{20}$	**214**
215	15785.$_{311}$	218.6	672.1	453.5	406.0	47.5	0.5881	0.0954$_{18}$	10.48$_{20}$	**215**
216	16096.$_{315}$	219.7	672.4	452.7	405.2	47.5	0.5903	0.0936$_{18}$	10.68$_{21}$	**216**
217	16411.$_{321}$	220.7	672.7	452.0	404.5	47.5	0.5924	0.0918$_{17}$	10.89$_{21}$	**217**
218	16732.$_{326}$	221.8	673.0	451.2	403.7	47.5	0.5945	0.0901$_{17}$	11.10$_{21}$	**218**
219	17058.$_{331}$	222.8	673.3	450.5	403.0	47.5	0.5967	0.0884$_{16}$	11.31$_{22}$	**219**
220	17389.	223.9	673.6	449.7	402.2	47.5	0.5988	0.0868	11.53	**220**

TABLE IV.

SATURATED VAPOR OF ETHER.

FRENCH UNITS.

Temperature, Degrees Centigrade.	Pressure, Millimeters of Mercury.	Heat of the Liquid.	Total Heat.	Heat of Vaporization.	Heat equivalent of Internal Work.	Heat equivalent of External Work.	Entropy of the Liquid.	Specific Volume.	DENSITY. Weight, in Kilos, of one Cubic Meter.	Temperature, Degrees Centigrade.
t	p	q	λ	r	ρ	Apu	$\int \frac{cdt}{T}$	s	γ	t
0	184.39	0.00	94.00	94.00	86.45	7.55	0.0000	1.278	0.782	**0**
10	286.83	5.32	98.44	93.12	85.37	7.75	0.01909	0.8440	1.185	**10**
20	432.78	10.70	102.78	92.08	84.13	7.95	0.03772	0.5741	1.742	**20**
30	634.80	16.14	107.00	90.86	82.72	8.14	0.05593	0.4013	2.402	**30**
40	907.04	21.63	111.11	89.48	81.15	8.33	0.07374	0.2877	3.746	**40**
50	1264.8	27.19	115.11	87.92	79.41	8.51	0.09117	0.2108	4.744	**50**
60	1725.0	32.80	119.00	86.20	77.53	8.67	0.1083	0.1580	6.329	**60**
70	2304.9	38.48	122.78	84.30	75.49	8.81	0.1250	0.1203	8.313	**70**
80	3022.8	44.21	126.44	82.23	73.32	8.91	0.1415	0.0932	10.73	**80**
90	3898.3	50.00	130.00	80.00	71.03	8.97	0.1576	0.0731	13.68	**90**
100	4953.3	55.86	133.44	77.58	68.62	8.96	0.1735	0.0577	17.33	**100**
110	6214.6	61.77	136.78	75.01	66.13	8.88	0.1891	0.0459	21.79	**110**
120	7719.2	67.74	140.00	72.26	63.57	8.69	0.2045	0.0364	27.47	**120**

TABLE V.

SATURATED VAPOR OF ALCOHOL.

FRENCH UNITS.

									DENSITY.	
Temperature, Degrees Centigrade. t	Pressure, Millimeters of Mercury. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int \frac{cdt}{T}$	Specific Volume. s	Weight, in Kilos, of one Cubic Meter. γ	Temperature, Degrees Centigrade. t
0	12.70	0.00	236.5	236.50	223.38	13.12	0.0000	32.21	0.03105	**0**
10	24.23	5.59	244.4	238.81	225.29	13.52	0.01996	17.39	0.05750	**10**
20	44.46	11.42	252.0	240.58	226.56	14.02	0.04003	9.847	0.1016	**20**
30	78.52	17.49	258.0	240.51	226.03	14.48	0.06029	5.753	0.1738	**30**
40	133.69	23.71	262.0	238.29	223.44	14.85	0.08073	3.465	0.2886	**40**
50	219.90	30.21	264.0	233.79	218.59	15.10	0.1014	2.143	0.4666	**50**
60	350.21	37.37	265.0	227.63	212.38	15.25	0.1223	1.359	0.7358	**60**
70	541.15	44.58	265.2	220.62	205.28	15.34	0.1435	0.8855	1.129	**70**
80	812.91	52.11	265.2	213.09	197.69	15.40	0.1650	0.5921	1.689	**80**
90	1189.3	59.07	266.0	206.03	190.54	15.49	0.1868	0.4073	2.455	**90**
100	1697.6	68.18	267.3	199.12	183.54	15.58	0.2090	0.2874	3.479	**100**
110	2367.6	76.74	269.6	192.86	177.15	15.71	0.2315	0.2083	4.801	**110**
120	3231.7	85.67	272.5	186.83	170.97	15.86	0.2544	0.1544	6.477	**120**
130	4328.0	94.98	276.0	181.02	164.99	16.03	0.2776	0.1170	8.547	**130**
140	5674.6	104.70	280.5	175.80	159.55	16.25	0.3013	0.0905	11.05	**140**
150	7318.4	114.82	285.3	170.48	154.03	16.45	0.3254	0.0714	14.01	**150**

TABLE VI.

SATURATED VAPOR OF CHLOROFORM.

FRENCH UNITS.

Temperature, Degrees Centigrade.	Pressure, Millimeters of Mercury.	Heat of the Liquid.	Total Heat.	Heat of Vaporization.	Heat equivalent of Internal Work.	Heat equivalent of External Work.	Entropy of the Liquid.	Specific Volume.	DENSITY. Weight, in Kilos, of one Cubic Meter.	Temperature, Degrees Centigrade.
t	p	q	λ	r	ρ	Apu	$\int\frac{cdt}{T}$	s	γ	t
0	59.72	0.00	67.00	67.00	62.45	4.55	0.00000	2.377	0.4207	**0**
10	100.47	2.33	68.38	66.04	61.29	4.75	0.00836	1.475	0.6780	**10**
20	160.47	4.67	69.75	65.08	60.14	4.94	0.01646	0.9601	1.042	**20**
30	247.51	7.02	71.12	64.10	59.00	5.10	0.02432	0.6437	1.554	**30**
40	369.26	9.37	72.50	63.13	57.87	5.26	0.03196	0.4449	2.248	**40**
50	535.05	11.74	73.87	62.13	56.73	5.40	0.03940	0.3155	3.170	**50**
60	755.44	14.12	75.25	61.13	55.60	5.53	0.04664	0.2291	4.356	**60**
70	1042.1	16.51	76.62	60.11	54.45	5.66	0.05369	0.1700	5.88	**70**
80	1407.6	18.91	78.00	59.09	53.31	5.78	0.06057	0.1286	7.78	**80**
90	1865.2	21.32	79.37	58.05	52.16	5.89	0.06729	0.0991	10.09	**90**
100	2428.5	23.74	80.75	57.01	51.01	6.00	0.07386	0.0777	12.87	**100**
110	3111.0	26.17	82.12	55.95	49.84	6.11	0.08027	0.0618	16.18	**110**
120	3925.7	28.61	83.50	54.89	48.67	6.22	0.08655	0.0500	20.00	**120**
130	4885.1	31.06	84.87	53.81	47.48	6.33	0.09270	0.0410	24.39	**130**
140	6000.2	33.52	86.25	52.73	46.30	6.43	0.09872	0.0340	29.4	**140**
150	7280.6	35.99	87.62	51.63	45.10	6.53	0.10462	0.0286	35.0	**150**
160	8734.2	38.47	89.00	50.53	43.90	6.63	0.11041	0.0243	41.2	**160**

TABLE VII.

SATURATED VAPOR OF CARBON BISULPHIDE.

FRENCH UNITS.

Temperature, Degrees Centigrade.	Pressure, Millimeters of Mercury.	Heat of the Liquid.	Total Heat.	Heat of Vaporization.	Heat equivalent of Internal Work.	Heat equivalent of External Work.	Entropy of the Liquid.	Specific Volume.	Density.	Temperature, Degrees Centigrade.
									Weight, in Kilos, of one Cubic Meter.	
t	p	q	λ	r	ρ	Apu	$\int \frac{c\,dt}{T}$	s	γ	t
0	127.91	0.00	90.00	90.00	82.76	7.24	0.00000	1.766	0.5662	**0**
10	198.46	2.36	91.42	89.06	81.58	7.48	0.00847	1.177	0.8496	**10**
20	298.03	4.74	92.76	88.02	80.31	7.71	0.01670	0.8071	1.239	**20**
30	434.62	7.13	94.01	86.88	78.97	7.91	0.02472	0.5684	1.759	**30**
40	617.53	9.54	95.18	85.64	77.54	8.10	0.03252	0.4098	2.440	**40**
50	857.07	11.96	96.27	84.31	76.04	8.27	0.04013	0.3017	3.315	**50**
60	1164.5	14.41	97.28	82.87	74.45	8.42	0.04756	0.2264	4.417	**60**
70	1552.1	16.86	98.20	81.34	72.78	8.56	0.05482	0.1726	5.794	**70**
80	2032.5	19.34	99.04	79.70	71.03	8.67	0.06192	0.1338	7.473	**80**
90	2619.1	21.83	99.80	77.97	69.20	8.77	0.06886	0.1052	9.51	**90**
100	3325.2	24.34	100.48	76.14	67.29	8.85	0.07566	0.0837	11.95	**100**
110	4164.1	26.86	101.07	74.21	65.31	8.90	0.08233	0.0674	14.84	**110**
120	5148.8	29.40	101.58	72.18	63.24	8.94	0.08886	0.0549	18.21	**120**
130	6291.6	31.96	102.01	70.05	61.09	8.96	0.09527	0.0452	22.12	**130**
140	7604.0	34.53	102.36	67.83	58.88	8.95	0.10157	0.0375	26.7	**140**
150	9095.9	37.12	102.62	65.50	56.58	8.92	0.10775	0.0314	31.8	**150**

TABLE VIII.

SATURATED VAPOR OF CARBON TETRACHLORIDE.

FRENCH UNITS.

Temperature, Degrees Centigrade. t	Pressure, Millimeters of Mercury. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int \frac{cdt}{T}$	Specific Volume. s	DENSITY.	Temperature, Degrees Centigrade. t
									Weight, in Kilos, of one Cubic Meter. γ	
0	32.05	0.00	52.00	52.00	48.54	3.46	0.00000	3.272	0.3056	0
10	55.07	1.99	53.44	51.45	47.85	3.60	0.00714	2.005	0.4987	10
20	90.99	3.99	54.86	50.87	47.13	3.74	0.01409	1.283	0.7794	20
30	142.27	6.02	56.23	50.21	46.33	3.88	0.02087	0.8510	1.175	30
40	214.81	8.06	57.58	49.52	45.51	4.01	0.02749	0.5831	1.715	40
50	314.38	10.12	58.88	48.76	44.62	4.14	0.03306	0.4109	2.434	50
60	447.43	12.20	60.16	47.96	43.69	4.25	0.04028	0.2969	3.368	60
70	621.15	14.30	61.40	47.10	42.75	4.35	0.04648	0.2192	4.562	70
80	843.29	16.42	62.60	46.18	41.74	4.44	0.04255	0.1650	6.061	80
90	1122.3	18.55	63.77	45.22	40.50	4.72	0.05849	0.1263	7.92	90
100	1467.1	20.70	64.90	44.20	39.62	4.58	0.06433	0.0980	10.20	100
110	1887.4	22.87	66.01	43.14	38.52	4.62	0.07006	0.0770	12.99	110
120	2393.7	25.06	67.07	42.01	37.36	4.65	0.07569	0.0611	16.37	120
130	2996.9	27.27	68.10	40.83	36.18	4.65	0.08122	0.0490	20.41	130
140	3709.0	29.49	69.10	39.61	34.95	4.63	0.08666	0.0395	25.3	140
150	4543.1	31.73	70.07	38.34	33.75	4.59	0.09201	0.0321	31.2	150
160	5513.1	34.00	71.00	37.00	32.47	4.53	0.09729	0.0262	38.2	160

TABLE IX.

SATURATED VAPOR OF ACETON.

FRENCH UNITS.

Temperature, Degrees Centigrade. t	Pressure, Millimeters of Mercury. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	DENSITY. Weight, in Kilos, of one Cubic Meter. γ	Temperature, Degrees Centigrade. t
0	63.33	0.00	140.50	140.50	131.82	8.68	0.00000	4.275	0.2339	0
10	110.32	5.10	144.11	139.01	129.51	9.50	0.01832	2.686	0.3723	10
20	180.08	10.29	147.62	137.33	127.16	10.17	0.03627	1.758	0.5688	20
30	280.05	15.55	151.03	135.48	124.83	10.65	0.05380	1.187	0.8425	30
40	419.35	20.89	154.33	133.44	121.39	11.05	0.07119	0.8227	1.215	40
50	608.81	26.31	157.53	131.22	119.86	11.36	0.08820	0.5830	1.715	50
60	860.96	31.81	160.63	128.82	117.22	11.60	0.1040	0.4215	2.372	60
70	1180.9	37.39	163.62	126.23	114.43	11.80	0.1214	0.3106	3.220	70
80	1611.1	43.05	166.51	123.46	111.49	11.97	0.1376	0.2328	4.296	80
90	2140.8	48.79	169.30	120.51	108.41	12.10	0.1536	0.1773	5.640	90
100	2706.2	54.61	171.98	117.37	105.17	12.20	0.1694	0.1372	7.289	100
110	3594.3	60.50	174.56	114.06	101.78	12.28	0.1850	0.1076	9.294	110
120	4552.0	66.48	177.04	110.56	98.23	12.33	0.2004	0.0856	11.68	120
130	5684.9	72.54	179.42	106.88	94.53	12.35	0.2156	0.0689	14.51	130
140	7007.6	78.67	181.69	103.02	90.67	12.35	0.2306	0.0561	17.83	140

TABLE X.

SATURATED VAPOR OF AMMONIA.

ENGLISH UNITS.

Temperature, Degrees Fahrenheit. t	Pressure, Pounds per Square Inch. p	Heat of the Liquid. q	Total Heat. λ	Heat of Vaporization. r	Heat equivalent of Internal Work. ρ	Heat equivalent of External Work. Apu	Entropy of the Liquid. $\int\frac{cdt}{T}$	Specific Volume. s	Density Weight, in pounds, of one Cubic Foot. γ	Temperature, Degrees Fahrenheit. t
—40	9.93	—79	519	598	549	49	—0.1737	26.9	0.0373	**—40**
—35	11.58	—74	520	594	544	50	—0.1607	23.3	0.0429	**—35**
—30	13.36	—68	522	590	540	50	—0.1482	20.3	0.0492	**—30**
—25	15.40	—63	523	586	535	51	—0.1354	17.8	0.0562	**—25**
—20	17.70	—57	525	582	531	51	—0.1229	15.6	0.0640	**—20**
—15	20.25	—52	526	578	526	52	—0.1103	13.7	0.0726	**—15**
—10	23.10	—46	528	574	522	52	—0.0982	12.2	0.0821	**—10**
—5	26.25	—41	529	570	517	53	—0.0859	10.8	0.0925	**—5**
0	29.74	—35	531	566	513	53	—0.0738	9.63	0.104	**0**
5	33.58	—30	532	562	508	53	—0.0619	8.60	0.116	**5**
10	37.80	—24	534	558	504	54	—0.0501	7.71	0.130	**10**
15	42.43	—19	535	554	500	54	—0.0386	6.93	0.144	**15**
20	47.49	—13	537	550	495	55	—0.0271	6.24	0.160	**20**
25	53.01	—8	538	546	491	55	—0.0157	5.64	0.177	**25**
30	59.01	—2	540	543	486	56	—0.0044	5.11	0.196	**30**
35	65.58	3	541	538	482	56	0.0067	4.64	0.216	**35**
40	72.59	9	543	534	478	56	0.0177	4.20	0.237	**40**
45	80.21	14	544	530	473	57	0.0287	3.85	0.260	**45**
50	88.44	20	546	526	469	57	0.0395	3.52	0.284	**50**
55	97.30	25	547	522	464	58	0.0502	3.22	0.310	**55**
60	106.82	31	549	518	460	58	0.0608	2.96	0.338	**60**
65	117.04	36	550	514	456	58	0.0713	2.72	0.367	**65**
70	127.98	42	552	510	451	59	0.0817	2.51	0.398	**70**
75	139.67	47	553	506	447	59	0.0921	2.32	0.431	**75**
80	152.15	53	555	502	442	60	0.1023	2.14	0.467	**80**
85	165.47	58	556	498	438	60	0.1124	1.99	0.504	**85**
90	179.64	64	558	494	434	60	0.1224	1.82	0.543	**90**
95	194.70	69	559	490	428	61	0.1324	1.71	0.584	**95**
100	210.70	75	561	486	425	61	0.1423	1.59	0.627	**100**

TABLE XI.

SATURATED VAPOR OF SULPHUR DIOXIDE.

ENGLISH UNITS,

									DENSITY.	
Temperature, Degrees Fahrenheit.	Pressure, Pounds per Square Inch.	Heat of the Liquid.	Total Heat.	Heat of Vaporization.	Heat equivalent of Internal Work.	Heat equivalent of External Work.	Entropy of the Liquid.	Specific Volume.	Weight, in pounds, of one Cubic Foot.	Temperature, Degrees Fahrenheit.
t	p	q	λ	r	ρ	Apu	$\int\frac{cdt}{T}$	s	γ	t
—40	3.14	—29	166	195	182	13	—0.0632	23.0	0.0434	—40
—35	3.70	—27	167	194	180	14	—0.0584	19.7	0.0507	—35
—30	4.34	—25	168	193	179	14	—0.0539	17.0	0.0590	—30
—25	5.07	—23	168	191	177	14	—0.0492	14.7	0.0682	—25
—20	5.90	—21	169	190	176	14	—0.0447	12.7	0.0785	—20
—15	6.83	—19	170	189	175	14	—0.0401	11.1	0.0901	—15
—10	7.88	—17	170	187	173	14	—0.0357	9.73	0.103	—10
—5	9.05	—15	171	186	172	14	—0.0312	8.56	0.117	—5
0	10.35	—13	172	185	170	15	—0.0268	7.54	0.133	0
5	11.81	—11	172	183	168	15	—0.0225	6.67	0.150	5
10	13.41	—9	173	182	167	15	—0.0182	5.93	0.169	10
15	15.19	—7	174	181	166	15	—0.0140	5.29	0.189	15
20	17.15	—5	174	179	164	15	—0.0098	4 72	0.212	20
25	19.30	—3	175	178	163	15	—0.0057	4.23	0.236	25
30	21.66	—1	176	177	162	15	—0.0016	3.81	0.263	30
35	24.24	1	176	175	160	15	0.0024	3.43	0.291	35
40	27.06	3	177	174	158	16	0.0064	3.10	0.322	40
45	30.12	5	177	172	156	16	0.0104	2.81	0.356	45
50	33.45	7	178	171	155	16	0.0144	2.58	0.390	50
55	37.07	9	179	170	154	16	0.0182	2.32	0.430	55
60	40.98	11	179	168	152	16	0.0221	2.11	0.473	60
65	45.20	13	180	167	151	16	0.0259	1.94	0.516	65
70	49.75	15	181	166	150	16	0.0297	1.78	0.563	70
75	54.64	17	181	164	148	16	0.0334	1.63	0.614	75
80	59.90	19	182	163	146	17	0.0372	1.50	0.668	80
85	65.54	21	183	162	145	17	0.0409	1.38	0.725	85
90	71.57	23	183	160	143	17	0.0445	1.27	0.786	90
95	78.02	25	184	159	142	17	0.0482	1.18	0.849	95
100	84.90	27	185	158	141	17	0.0518	1.09	0.917	100

TABLE XII.

SPECIFIC GRAVITY AND SPECIFIC VOLUME OF LIQUIDS.

Name of Liquid.	Specific Gravity, compared with Water at 4° C.	Specific Volume. Cubic Meters per Kilo.
Alcohol, C_2H_6O	0.80625 [Mendelejeff, 1869]	0.001240
Ether, $C_4H_{10}O$	0.736 [Kopp, 1860]	0.001358
Chloroform.	1.527 [Thorpe, 1880]	0.000655
Carbon bisulphide, CS_2 . . .	1.2922 [Thorpe, 1880]	0.000774
Carbon tetrachloride, CCl_4 . .	1.6320 [Thorpe, 1880]	0.000613
Aceton, C_3H_6O	0.81 [Zander, 1882]	0.00123
Sulphur Dioxide SO_2	1.4336 [Andréeff, 1859]	0.0006981
Ammonia NH_3	0.6364 [Andréeff, 1859]	0.001571

TABLE XIII.

VOLUME OF WATER.

Vol. at 4° C=1.

[Rossetti, 1871] and [Hirn, 1867.]

Temperature.	Volume.	Temperature.	Volume.	Temperature.	Volume.	Temperature.	Volume.
10	1.000253	**60**	1.01691	**110**	1.0512	**160**	1.1018
20	1.001744	**70**	1.02256	**120**	1.0599	**170**	1.1139
30	1.00425	**80**	1.02887	**130**	1.0694	**180**	1.1268
40	1.00770	**90**	1.03567	**140**	1.0795	**190**	1.1403
50	1.01195	**100**	1.04312	**150**	1.0903	**200**	1.1544

NAPERIAN LOGARITHMS.

$e = 2.7182818 \quad \log e = 0.4342945 = M$

	0	1	2	3	4	5	6	7	8	9
1.0	0.0000	0.00995	0.01980	0.02956	0.03922	0.04879	0.05827	0.06766	0.07696	0.08618
1.1	0.09531	0.1044	0.1133	0.1222	0.1310	0.1398	0.1484	0.1570	0.1655	0.1739
1.2	0.1823	0.1906	0.1988	0.2070	0.2151	0.2231	0.2311	0.2390	0.2469	0.2546
1.3	0.2624	0.2700	0.2776	0.2852	0.2927	0.3001	0.3075	0.3148	0.3221	0.3293
1.4	0.3365	0.3436	0.3507	0.3577	0.3646	0.3716	0.3784	0.3853	0.3920	0.3988
1.5	0.4055	0.4121	0.4187	0.4253	0.4318	0.4382	0.4447	0.4511	0.4574	0.4637
1.6	0.4700	0.4762	0.4824	0.4886	0.4947	0.5008	0.5068	0.5128	0.5188	0.5247
1.7	0.5306	0.5365	0.5423	0.5481	0.5539	0.5596	0.5653	0.5710	0.5766	0.5822
1.8	0.5878	0.5933	0.5988	0.6043	0.6098	0.6152	0.6206	0.6259	0.6313	0.6366
1.9	0.6418	0.6471	0.6523	0.6575	0.6627	0.6678	0.6729	0.6780	0.6831	0.6881
2.0	0.6931	0.6981	0.7031	0.7080	0.7129	0.7178	0.7227	0.7275	0.7324	0.7372
2.1	0.7419	0.7467	0.7514	0.7561	0.7608	0.7655	0.7701	0.7747	0.7793	0.7839
2.2	0.7884	0.7930	0.7975	0.8020	0.8065	0.8109	0.8154	0.8198	0.8242	0.8286
2.3	0.8329	0.8372	0.8416	0.8459	0.8502	0.8544	0.8587	0.8629	0.8671	0.8713
2.4	0.8755	0.8796	0.8838	0.8879	0.8920	0.8961	0.9002	0.9042	0.9083	0.9123
2.5	0.9163	0.9203	0.9243	0.9282	0.9322	0.9361	0.9400	0.9439	0.9478	0.9517
2.6	0.9555	0.9594	0.9632	0.9670	0.9708	0.9746	0.9783	0.9821	0.9858	0.9895
2.7	0.9933	0.9969	1.0006	1.0043	1.0080	1.0116	1.0152	1.0188	1.0225	1.0260
2.8	1.0296	1.0332	1.0367	1.0403	1.0438	1.0473	1.0508	1.0543	1.0578	1.0613
2.9	1.0647	1.0682	1.0716	1.0750	1.0784	1.0818	1.0852	1.0886	1.0919	1.0953
3.0	1.0986	1.1019	1.1053	1.1086	1.1119	1.1151	1.1184	1.1217	1.1249	1.1282
3.1	1.1314	1.1346	1.1378	1.1410	1.1442	1.1474	1.1506	1.1537	1.1569	1.1600
3.2	1.1632	1.1663	1.1694	1.1725	1.1756	1.1787	1.1817	1.1848	1.1878	1.1909
3.3	1.1939	1.1969	1.2000	1.2030	1.2060	1.2090	1.2119	1.2149	1.2179	1.2208
3.4	1.2238	1.2267	1.2296	1.2326	1.2355	1.2384	1.2413	1.2442	1.2470	1.2499
3.5	1.2528	1.2556	1.2585	1.2613	1.2641	1.2669	1.2698	1.2726	1.2754	1.2782
3.6	1.2809	1.2837	1.2865	1.2892	1.2920	1.2947	1.2975	1.3002	1.3029	1.3056
3.7	1.3083	1.3110	1.3137	1.3164	1.3191	1.3218	1.3244	1.3271	1.3297	1.3324
3.8	1.3350	1.3376	1.3403	1.3429	1.3455	1.3481	1.3507	1.3533	1.3558	1.3584
3.9	1.3610	1.3635	1.3661	1.3686	1.3712	1.3737	1.3762	1.3788	1.3813	1.3838
4.0	1.3863	1.3888	1.3913	1.3938	1.3962	1.3987	1.4012	1.4036	1.4061	1.4085
4.1	1.4110	1.4134	1.4159	1.4183	1.4207	1.4231	1.4255	1.4279	1.4303	1.4327
4.2	1.4351	1.4375	1.4398	1.4422	1.4446	1.4469	1.4493	1.4516	1.4540	1.4563
4.3	1.4586	1.4609	1.4633	1.4656	1.4679	1.4702	1.4725	1.4748	1.4770	1.4793
4.4	1.4816	1.4839	1.4861	1.4884	1.4907	1.4929	1.4951	1.4974	1.4996	1.5019
4.5	1.5041	1.5063	1.5085	1.5107	1.5129	1.5151	1.5173	1.5195	1.5217	1.5239
4.6	1.5261	1.5282	1.5304	1.5326	1.5347	1.5369	1.5390	1.5412	1.5433	1.5454
4.7	1.5476	1.5497	1.5518	1.5539	1.5560	1.5581	1.5602	1.5623	1.5644	1.5665
4.8	1.5686	1.5707	1.5728	1.5748	1.5769	1.5790	1.5810	1.5831	1.5851	1.5872
4.9	1.5892	1.5913	1.5933	1.5953	1.5974	1.5994	1.6014	1.6034	1.6054	1.6074
5.0	1.6094	1.6114	1.6134	1.6154	1.6174	1.6194	1.6214	1.6233	1.6253	1.6273
5.1	1.6292	1.6312	1.6332	1.6351	1.6371	1.6390	1.6409	1.6429	1.6448	1.6467
5.2	1.6487	1.6506	1.6525	1.6544	1.6563	1.6582	1.6601	1.6620	1.6639	1.6658
5.3	1.6677	1.6696	1.6715	1.6734	1.6752	1.6771	1.6790	1.6808	1.6827	1.6845
5.4	1.6864	1.6882	1.6901	1.6919	1.6938	1.6956	1.6974	1.6993	1.7011	1.7029
5.5	1.7047	1.7066	1.7084	1.7102	1.7120	1.7138	1.7156	1.7174	1.7192	1.7210
5.6	1.7228	1.7246	1.7263	1.7281	1.7299	1.7317	1.7334	1.7352	1.7370	1.7387

NAPERIAN LOGARITHMS.

	0	1	2	3	4	5	6	7	8	9
5.7	1.7405	1.7422	1.7440	1.7457	1.7475	1.7492	1.7509	1.7527	1.7544	1.7561
5.8	1.7579	1.7596	1.7613	1.7630	1.7647	1.7664	1.7681	1.7699	1.7716	1.7733
5.9	1.7750	1.7766	1.7783	1.7800	1.7817	1.7834	1.7851	1.7867	1.7884	1.7901
6.0	1.7918	1.7934	1.7951	1.7967	1.7984	1.8001	1.8017	1.8034	1.8050	18.066
6.1	1.8083	1.8099	1.8116	1.8132	1.8148	1.8165	1.8181	1.8197	1.8213	1.8229
6.2	1.8245	1.8262	1.8278	1.8294	1.8310	1.8326	1.8342	1.8358	1.8374	1.8390
6.3	1.8405	1.8421	1.8437	1.8453	1.8469	1.8485	1.8500	1.8516	1.8532	1.8547
6.4	1.8563	1.8579	1.8594	1.8610	1.8625	1.8641	1.8656	1.8672	1.8687	1.8703
6.5	1.8718	1.8733	1.8749	1.8764	1.8779	1.8795	1.8810	1.8825	1.8840	1.8856
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